Workstation Software

CLIPSTER

Edit Tool

User Guide

CLIPSTER Edit Tool User Guide

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User Guide Version 1.4 for CLIPSTER Edit Tool Version 1.4

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Headquarters:

DVS Digital Video Systems GmbH
Krepenstr. 8
30165 Hannover
GERMANY

Phone:	+49-511-67807-0
Fax:	+49-511-630070
E-mail:	info@dvs.de
Internet:	http://www.dvs.de

Support:

Phone:	+49-511-67807-25
Fax:	+49-511-67807-31
E-mail:	support@dvs.de

For the Americas:

U.S. Headquarters:

DVS Digital Video, Inc.
300 East Magnolia Boulevard, Suite 102
Burbank, CA 91502
USA

Phone:	+1-818-846-3600
Fax:	+1-818-846-3648
E-mail:	info@dvsus.com
Internet:	http://www.dvsus.com

Support:

E-mail:	support@dvsus.com

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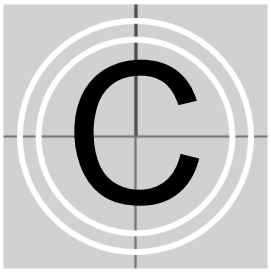

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Introduction

This documentation describes how to use the Edit Tool of CLIPSTER, the real-time editing system manufactured by DVS. CLIPSTER is a powerful high-definition video workstation with enormous flexibility, especially designed to meet the demands of modern post production houses.

CLIPSTER offers capturing, online editing and storing of digital film and audio data in one device. The system performs all works in real time. Video data is stored and worked with in its original uncompressed format, independent of resolution, color space and bit depth. All formats and resolutions can be processed, from SD up to 2K, and the final result can be played out in a freely selectable format. Conversions and calculation times for rendering processes are rarely necessary because of the high-quality hardware developed by DVS. Additionally, up to 16 different channels of audio can be in- or output by CLIPSTER and the data can be accessed and processed in the software as easily as the video material. All film, video and audio data is stored in the Windows file system and thus accessible right away when working with other applications.

The CLIPSTER Edit Tool is part of the CLIPSTER software package. It is a software module that enables you to edit your video and audio material in a freely configurable number of tracks. For this clips of different formats and resolutions are added to a timeline in the same sequence as they should be played out in the end. When working with video you can edit your material with cuts, dissolves, wipes, etc. as well as scalings, pannings, zoomings, and/or color correction. Thus you can create your perfect project. When working with audio, you can control the volume of a clip at every position within the timeline, for example, to create fade-ins and -outs. During all times your original material is never touched or altered because all editing processes are performed virtually. Of course, to provide for the best possible integration of CLIPSTER, the CLIPSTER Edit Tool is compatible with the EDL standard and supports it via import function. Once your project is finished, you can finalize it and save the edited clip in any video and file format you like.

In short, the CLIPSTER Edit Tool offers:

– Easy and intuitive handling of the user interface,
– clips can be moved via drag-and-drop,
– user friendly designed timeline including editing functions,
– total control of the editing process via a real-time video overlay,
– project-oriented and adaptable clip management including thumbnail function,
– different formats are allowed in one project (multi-resolution editing),
– real-time view of timeline,
– automatic defragmentation of video storage for an optimized real-time performance,
– projects can be built up via import or loading of an EDL (edit decision list),
– projects can be finalized to a clip (render function), and
– full audio support.

Furthermore, there are several features optionally available for the CLIPSTER Edit Tool which allow you to adapt the CLIPSTER software to your special needs. The following options are available:

CLIPSTER-ColorGrading Option	Primary real-time color grading.
CLIPSTER-12Bit Option	Support of 12 and 16 bit file formats (DPX and TIFF) for in- and output.
CLIPSTER-Remote-Zoom&Pan Option	Remote control of real-time zoom and pan operation from a third-party color grader.
Additional Operators	Additional editing and effects features for clips in the timeline that enhance the capability of CLIPSTER.

1.1 Overview

This user guide informs you about the general handling of the CLIPSTER Edit Tool as well as of its complete controllable interface.

The chapters in this user guide contain the following information:

Chapter 1	Begins with a short introduction to CLIPSTER and the CLIPSTER Edit Tool, followed by a note regarding the audience this manual is written for and an explanation of the conventions used in this manual. Additionally, it provides important notes that you should read.
Chapter 2	Provides basic information about the CLIPSTER Edit Tool. Here you can find information about the software structure of CLIPSTER as well as a first overview of the user interface of the CLIPSTER Edit Tool. Furthermore, this chapter provides some general notes about how to perform a project management with the CLIPSTER Edit Tool.
Chapter 3	In addition to the information how to start and shut down the program, you can find a beginner's tutorial how to work with the CLIPSTER Edit Tool and how to start your first project in this chapter.
Chapter 4	Explains the tool area of the CLIPSTER Edit Tool.
Chapter 5	This chapter describes the control area and the video overlay of the CLIPSTER Edit Tool.
Chapter 6	In this chapter the timeline of the CLIPSTER Edit Tool is described.
Chapter 7	Provides information about the individual menu options of the menu bar of the CLIPSTER Edit Tool.
Appendix	Gives additional information about the software. Among others you can find here a glossary of terms used in this user guide and the file formats that are supported by the CLIPSTER software.
Index	This chapter facilitates the search for specific terms.

1.2 Target Group

To use this user guide and the CLIPSTER Edit Tool correctly you should have experience in PC handling and be familiar with the hardware handling of a video system. If you want to use the software to its full potential, you should also have extensive knowledge in the field of digital video.

Furthermore, to use the video system in connection with other equipment, e.g. a VTR, you should know how to handle this equipment.

1.3 Conventions Used in this User Guide

The following typographical conventions will be used in this documentation:

- Texts preceded by this symbol describe activities that you must perform in the order indicated.

– Texts preceded by this symbol are parts of a list.

Texts preceded by this symbol are general notes intended to facilitate work and help avoid errors.

You must pay particular attention to text that follows this symbol to avoid errors.

“ ” Texts enclosed by quotation marks are references to other manuals, guides, chapters, or sections.

’Window’	Standard text in bold with single quotation marks indicates a window name
Group/Menu	Standard text in italic and bold indicates either a group name, menu name or options in a menu list
Menu » Option	In the specified group or menu select the stated item
BUTTON	Standard text in small caps and bold indicates push buttons
Item	Standard text in bold only stands for other labelled items of the user interface
File	Directory structure or file
Entries	Parameters, selections or entries made in the program

[Key]	An individual key or a key combination on a keyboard

Keyboard Shortcuts

To perform options or procedures with the keyboard often requires simultaneous pressing of two keys.

Example:

[Ctrl + F1]	If this is given, hold down the [Ctrl] key and press simultaneously the [F1] key.

1.4 Important Notes

Please observe the following while using the CLIPSTER Edit Tool:

Only use the designated video drive (disk stripe set) to store video and audio data. Other storage locations may be too slow for real-time operations.

Leave about 15% of the overall video hard disk capacity empty of data for real-time performance reasons.

The real-time capability of CLIPSTER depends to a large extent on the performance of the video system hardware. Therefore, it is recommended to terminate all other programs when working with the CLIPSTER software.

After copying or recording vast amounts of data to the video hard disk array, it is recommended to leave the CLIPSTER software running for a longer period of time (e.g. over night) without performing any real-time tasks (play-out or record). This will give the defragmentation tool of CLIPSTER time to reorganize the files on the hard disk array for an optimized real-time performance. For this the automatic starting of the defragmentation tool has to be enabled.

CLIPSTER is a very reliable software. However, because of the vast amount of third-party software available, its reactions on the installation of such could not be tested. The installation of third-party software may disrupt the real-time capability and/or limit the functionality of CLIPSTER.

When working with prerendered files and timeline elements that need a prerendering, it is recommended to activate the autosave function of CLIPSTER and set it to a relatively short interval.

Basics

The CLIPSTER Edit Tool is part of the software package of CLIPSTER. This chapter provides first some background information about the structure of the CLIPSTER software which includes a short overview of the different modules of the software package. After that an overview of the user interface of the CLIPSTER Edit Tool is provided to familiarize you with its appearance. This will be followed by a description of the task bar of the software. The chapter will be concluded with some general notes about how to perform a project management with the CLIPSTER Edit Tool.

2.1 Overview of the Software Structure

The CLIPSTER software package consists of various individual programs and modules that combined provide the system's unique capabilities to process digital video and audio in real time. The following diagram shows the communication processes between individual software parts and some hardware components of CLIPSTER in detail:

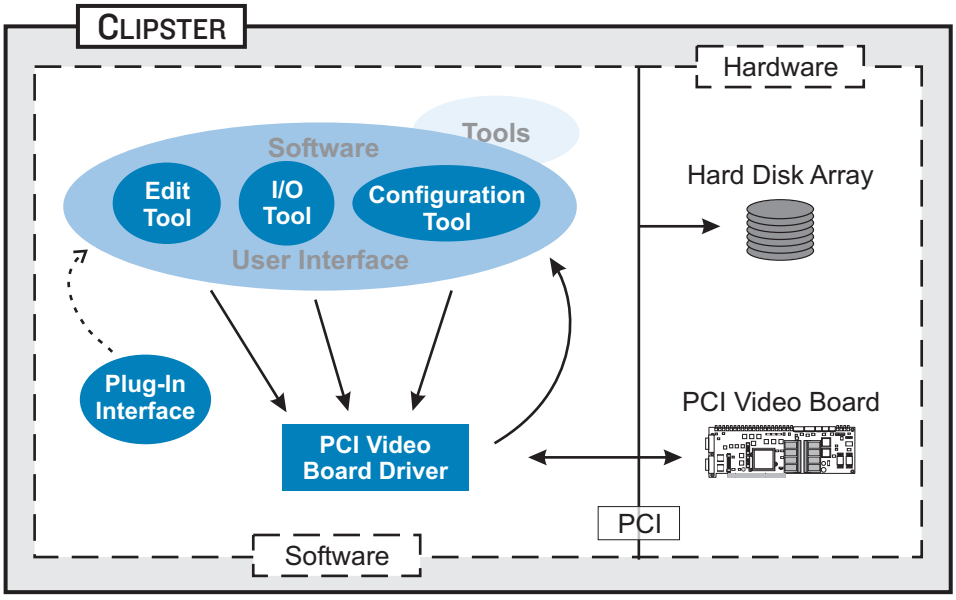


Figure 2-1: Structure of software

Although the graphic shows a software and a hardware side of the video system, this is only an abstraction of the real video device to show the ways of communication within the system.

Video Board and Driver

The central core of the whole system is the DVS PCI video board and its driver because they provide the functionality for the video system. Without them the system would not be able to display any video signals nor would the DVS software components be operational.

The PCI video board driver controls the video board and thus the in- and output of video signals. It runs in the background of your video system and is therefore not visible.

CLIPSTER Software Modules

The software user interface is the visible part of the software package of CLIPSTER. It consists of all the individual CLIPSTER software modules which control the video system and are used to perform editing

and video as well as audio processing tasks. These software modules are, for example, the CLIPSTER Edit Tool, the CLIPSTER I/O Tool and the CLIPSTER Configuration Tool. They are the basic software modules of CLIPSTER, i.e. the ones that you will use most in your every day work. You can see them in the drawing above in the oval 'Software User Interface'.

Depending on your system configuration there may be other tools and modules available on your video system. Further information about these can be found in their respective user guides.

The CLIPSTER Edit Tool is the module that allows to edit video material by adding cuts, dissolves, wipes, etc. to the timeline. In the timeline you can add clips of different formats and resolutions and process them, for example, via scalings, pannings and/or zoomings. The CLIPSTER Edit Tool module is compatible with the EDL standard and supports it via import function (performed via the I/O Tool and usable in the Edit Tool). One of the main features of CLIPSTER is that all editing tasks are performed virtually, i.e. the original material on the hard disk array is never altered. The clips used in the CLIPSTER software are only representations of the original material on the video hard disks. With this you can use the same material over and over again with different effects while the master is always maintained.

The CLIPSTER I/O Tool is mainly used for the digitization of a variety of different input sources, meaning the recording/capturing of video and audio material with CLIPSTER from other sources than computer storages. You can capture material from any source you like and CLIPSTER will record it in a freely selectable format, with or without color space conversion. For instance, you can capture data from telecines, VTRs, or even cameras – as desired in an automated batch processing mode or manually. Of course, playing out of the recorded material as well as of all other clips present on the system can be performed without any effort as well. Furthermore, the processing of EDLs (edit decision lists) is fully supported in this tool, for example, via import function.

For the configuration and setup of the whole video system and the software you can use the CLIPSTER Configuration Tool. Here you can set up, for example, the period for the automatic save function of the project file (autosave) as well as more software specific settings, such as the bin properties.

Once the CLIPSTER software is started, you can access the different modules available on your system easily via the task bar of the user interface (see section “The Task Bar” on page 2-7).

Tools and Services

Also part of the CLIPSTER software are various tools that can be used for a more basic configuration of the CLIPSTER video system or may be of help during service and maintenance tasks, e.g. monitoring and error diagnostics of the CLIPSTER hard- and software.

For instance, among them you can find the defragmentation tool of CLIPSTER which is a process automatically started with the CLIPSTER software and running in the background of the system. During stand-still times of CLIPSTER the defragmentation tool will reorganize the files present on the hard disk array for an optimized performance of real-time tasks such as a play-out or record. Among the tools it is the only process that runs in the system's background.

Most other tools delivered with the CLIPSTER software are used during the initial configuration and setup of the CLIPSTER video system only. In your daily work with CLIPSTER they are of no use.

For additional information about the defragmentation process in particular please refer to section "Automatic Defragmentation" on page A-9.

Plug-Ins (Operators)

In addition to the CLIPSTER software and its modules there are plug-ins (operators) available via the special and easy to use plug-in interface of CLIPSTER. These operators can be accessed as timeline element properties of clips and offer additional editing features for your video processing tasks, such as color correction or image processing. Depending on the configuration of the CLIPSTER video system and the optional features installed, there may be numerous operators available that enhance the editing functionality of CLIPSTER. Other plug-in operators can be programmed by anyone who knows how to develop software via C++ and wants to have special editing operators for their work via the freely available CLIPSTER Software Development Kit. Further information about the operators and plug-ins can be found in section "Timeline Properties of Clips" on page 6-63.

2.2 Overview of the User Interface

The following figure shows the user interface of the CLIPSTER Edit Tool as it appears after starting the program (for information on how to start the program see chapter “Getting Started” on page 3-1):

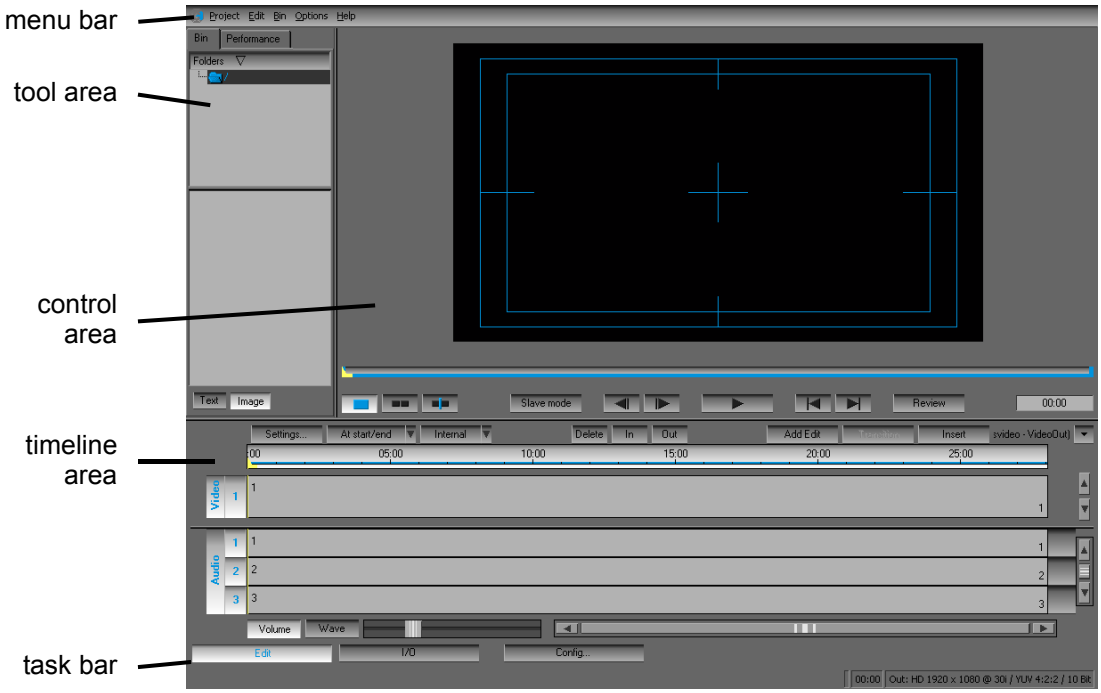


Figure 2-2: User interface of the CLIPSTER Edit Tool

The CLIPSTER software is designed to run in full-screen mode with any screen resolution to provide for an undistracted view on the video material and the editing task at hand. To switch to the operating system environment use the [Windows ( )] key on your keyboard or select from the menu of the CLIPSTER icon on the menu bar the menu option ***Minimize*** (see section “Minimize” on page 7-2).

After starting the program CLIPSTER the CLIPSTER Edit Tool software module is activated automatically. Here you can see the following items:

menu bar — At the top of the CLIPSTER user interface you can find a menu bar. This menu bar provides access to functions and tasks of an administrative nature to the CLIPSTER Edit Tool. Here you can find, for example, import and export functions as well as several menu options generally concerned with projects and project files. A description of the menu bar can be found in chapter “The Menus” on page 7-1.

tool area — Directly below the menu bar you can find the tool area which may show you depending on the currently active CLIPSTER module and/or on the optional features available various tools that can be used during your work with CLIPSTER. The tools are provided as tabs to switch easily between them. By default you can find among the tools, for example, the bin which provides initial access to the video material. For more details about the tool area and the individual tools provided see chapter “The Tool Area” on page 4-1.

control area — To the right of the tool area you can find the control area. In the CLIPSTER Edit Tool this area is used to pre- and review your current project. At the top you can find the video overlay where you can see the video material. Below the video overlay a scrub bar of the timeline is available. In contrast to the timeline in the timeline area where you can zoom in and out, the scrub bar always shows the complete timeline of the project. Below the scrub bar the controls are located to play out and move within your current project. Here you can also find buttons to switch between the different video overlay modes of the CLIPSTER Edit Tool: the edit mode, the master mode and the trim mode. The control area will be described in chapter “The Control Area” on page 5-1.

timeline area — In the timeline area you can find the available video and audio tracks. Most of the editing tasks are performed here, for example, by setting cutting points and defining operators. The timeline area can be configured freely and thus can be adapted to your individual needs. This area and how to work with the projects in the timeline is explained in chapter “The Timeline” on page 6-1.

task bar — The user interface provides at its bottom a task bar where you can switch between the different software modules of CLIPSTER. The task bar is available in most software modules and you can easily start and switch between them. It will be described in more detail in section “The Task Bar” on page 2-7.

2.3 The Task Bar

The user interface provides at its bottom a task bar where you can switch between the different software modules of CLIPSTER. The task bar is available in most software modules and with it you can easily switch to another module.

After starting the CLIPSTER software the CLIPSTER Edit Tool is started automatically (Edit). When you click on one of the inactive buttons in the task bar, the respective module of the CLIPSTER software will be loaded, most of them in the upper part of the user interface. The task bar provides the following buttons:

Edit

The **EDIT** button activates the Edit Tool of the CLIPSTER software. This software module allows to edit video material by adding cuts, dissolves, wipes, etc. to clips in a timeline. It is automatically active after starting the CLIPSTER software.

The CLIPSTER Edit Tool is described in this user guide.

I/O

The **I/O** button starts the CLIPSTER I/O Tool. You can use it to record and capture video and audio material with CLIPSTER from telecines, VTRs, or even cameras.

You can find further information about the CLIPSTER I/O Tool in its respective user guide.

Config...

The **CONFIG...** button opens the CLIPSTER Configuration Tool. Here you can configure and set up the whole video system and the software. With it you can, for example, set up the period for the automatic save function of the project file (autosave) as well as more software specific settings, such as the bin properties.

More information about the CLIPSTER Configuration Tool as well as various other configurations that can be performed can be found in the “CLIPSTER Configurations” user guide.

For a more detailed description of all the basic software modules mentioned above as well as other parts of the software together with references to their descriptions, please refer to section “Overview of the Software Structure” on page 2-2.

Additionally, you can find at the bottom right corner of the task bar several items which will provide you with information about the cur-

rently loaded project, the duration of the timeline of the CLIPSTER Edit Tool in total and the set output format for video in the timeline:

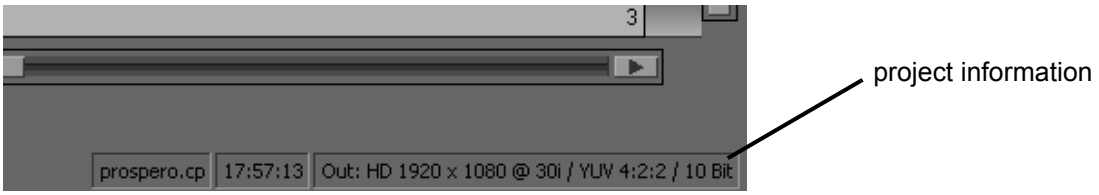


Figure 2-3: Project information

The timeline's duration shows you the duration of all clips present in the timeline tracks and depends on the currently selected video output raster (frame rate).

Furthermore, at the bottom left corner of the task bar you can find some status messages. They will be displayed as soon as project relevant tasks are performed, for instance, when a project is loaded or saved.

Figure 2-4: Status and help messages of the CLIPSTER software

As well, this part of the task bar will provide you with help information for the various menu options available via the menu bar of CLIPSTER. The help information will be displayed when you place the mouse cursor over one of the menu options.

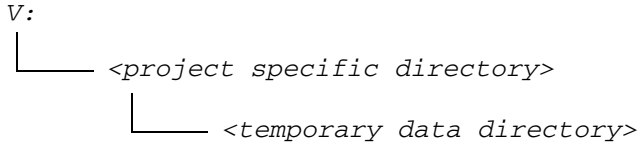
2.4 Notes on Project Management

Although CLIPSTER can handle even 2K film material in RGB 10 bit, some edit works cannot be played out in real time instantly when applied to the timeline: For example, material that comes directly from a DVS CineReel cannot be edited with operators other than hard cuts and then played out in real time, because the DVS CineReel as a storage location for video material cannot handle two data streams of video in HD which are necessary for a transition between two clips. In such a case, to perform a real-time play-out with transitions applied you have to 'prerender' the material beforehand.

The prerendering of timeline elements means that the CLIPSTER Edit Tool calculates clips and operators before a play-out takes place and stores the calculated extra files (images) in a location for temporary files on the video hard disks. These are then used for a play-out instead of the original material in the timeline and a virtually calculated operator.

The extra files carry project specific file names that are generated and administered by the CLIPSTER Edit Tool automatically for this project alone. During this process a lot of those files may be generated amounting to a large proportion of disk space. If your timeline carries a lot of operators that have to be prerendered and you continue your work with prerendering and deleting or changing some operators, already prerendered files are not deleted or altered automatically. Only when you close the project, the temporary data will be deleted. As long as you work on the project, the no longer necessary files remain on your video workstation.

The location where these temporary files are stored is saved project specific in the project file, i.e. each project file can have a different temporary directory and the exact location will be stored in the project file. Therefore, it is suggested, when a prerendering of material is necessary, to configure the project's temporary data to a directory of its own. DVS recommends, when working with different projects, to create for each project a project specific directory on your video hard disk array where the project file is stored. Beneath it create a subdirectory for the temporary data:



This structure guarantees a clear and easy to manage project.

You can set the temporary storage location of the currently loaded project in the CLIPSTER Edit Tool with the Configuration Tool of the

CLIPSTER software on the tab **Project** (group **Project**, field **Path for temporary data**; see “CLIPSTER Configurations” user guide for more information).

Also related to the prerendering of files are the ***Prerender all*** and ***Clean temp dir*** menu options on the menu ***Project*** (see section “Prerender all” on page 7-16 and section “Clean temp dir” on page 7-17) as well as the section “Real-time Capability of Clips” on page 4-12 and section “Prerendering of Timeline Elements” on page 6-38.

2.5 Notes on Source Timecode

Some file formats for clips, e.g. *.dpx files, are capable of storing more information than just their image content. These information are then usually written in a specified format into a file header and can be read and interpreted by other programs that support these kind of information. Among them you can find, for example, the name of the creator (usually the program that created the files), the creation date and time, the timecode or the keycode.

DVS especially makes use of the timecode information. These so-called source timecodes can then be used in the whole CLIPSTER software. For example, you can use source timecodes in the timeline of the CLIPSTER Edit Tool and regardless of their position in the timeline the respective clips will always show and use their source timecode. Then, prior to a play-out you can decide whether the internal timeline timecode should be given out as a timecode signal or the source timecode provided by the files.

However, regarding source timecode there are some peculiarities in the way CLIPSTER deals with source timecodes and some of them are detailed in the following:

Currently, of all file formats supported by the CLIPSTER software, only the *.dpx file format is checked for and provided with additional information such as source timecode.

The image files capable of storing timecode information usually provide space for one timecode only in their header (generic source timecode). However, because CLIPSTER is able to receive, for example, during a record, several timecodes incorporated in signals at various connectors, it uses more than just one timecode. During a write procedure, i.e. when recording clips via the CLIPSTER I/O Tool, CLIPSTER will write all received timecode information into the file's header. The ones additionally received will be stored at a location for user defined data in the header and usually cannot be interpreted and used with other applications than CLIPSTER.

When processing such clips afterwards, for instance, with the CLIPSTER Edit Tool, you can select between the various timecodes provided by a clip which may give you more control over their position in the timeline.

In the Configuration Tool of CLIPSTER you can configure the general way the CLIPSTER software should deal with timeline and source timecode (see "CLIPSTER Configurations" user guide for more information). Here you can set in the respective group the type of source timecode that CLIPSTER will use as the default timecode as well as the display type that the Edit Tool's timeline should use for your project. Additionally, you can specify which timecode should be given out when performing a play-out.

Furthermore, throughout the CLIPSTER software individual clips may use different source timecodes which is a setting that can be adjusted in the clip's properties (see section "Changing the Properties of Clips" on page 4-19). The type of source timecode used by each clip can be changed even when the clip was already used, e.g. in the timeline of the CLIPSTER Edit Tool. And when clips do not provide a source timecode of their own, you can set the clip's to show a virtual source timecode. The CLIPSTER software will then use the timecode specified as the source timecode offset as their virtual source timecode.

Getting Started

This chapter provides you with some general information necessary to begin your work with the CLIPSTER Edit Tool module. First, the steps to start the program will be explained. This is followed by a beginner's tutorial that shows you how to work with the CLIPSTER Edit Tool: In a step-by-step description you will be instructed what to do to start your first project and how to perform a simple editing task.

More detailed information about individual items or steps described here can be found in the chapters four to seven of this user guide

The chapter will be concluded with a description how to shut the program down.

3.1 Starting the Program

This section provides you with a description how to get the CLIPSTER Edit Tool started.

To start the program you have to do the following:

- Select from the **START** button menu of Windows in the submenu ***DVS*** the entry for CLIPSTER (for example, ***All Programs » DVS » DVS Clipster***).
  Alternatively, you may also start the program via the CLIPSTER icon on the desktop of Windows.

This will load the CLIPSTER software by DVS. As the starting user interface the CLIPSTER Edit Tool will be started automatically.

Because the CLIPSTER software is designed to run in full-screen mode to provide for an undistracted view on the video material and the editing task at hand, the following shortcuts may be helpful:

- To open the Windows Explorer [Windows ( ) + E]
- To open the Task Manager [Ctrl + Alt + Del]
- To switch to the Windows desktop [Windows ( ) + D]
- To switch to another program [Alt + TAB]

To minimize the user interface, for example, to access other programs, you may also use the ***Minimize*** menu option of the CLIPSTER icon on the menu bar (see section “Minimize” on page 7-2).

3.2 First Steps in the CLIPSTER Edit Tool

This section introduces in a step-by-step description how to work with the CLIPSTER Edit Tool. It will be explained what to do to begin a project, how to work with the timeline and how to perform a simple editing task. Use this tutorial to familiarize yourself with the CLIPSTER Edit Tool and the way it has to be handled.

3.2.1 Preparing the Bin

After starting the CLIPSTER software the CLIPSTER Edit Tool will be started automatically. In the upper left side of the Edit Tool window you can see the tool area with the bin activated by default.

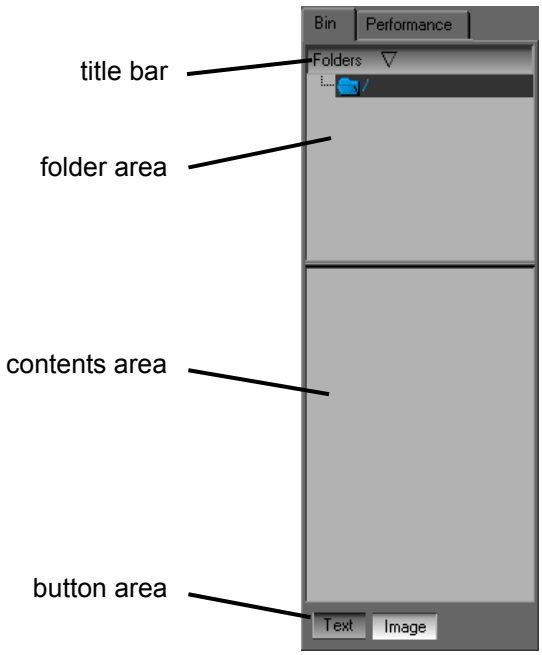


Figure 3-1: The bin activated in tool area

The bin provides initial access to the video material stored on your system. In the bin you can find two main areas: In the folder area you can make folders and directories to sort your material into. This way, you can perform a clip and project management. In the contents area you can preview the material sorted into a folder via thumbnails. Each thumbnail provides also a scrub bar to set roughly the inpoint of the respective clip.

You can configure the appearance of the bin freely. It will be saved together with the project file:

– You can arrange the areas horizontally if you like (perform a right mouse click on the bin's title bar or the button area and select the respective appearance from the context menu).
– Via the buttons in the button area you can set whether the clips shall be seen as thumbnails with text or with their text information only.
– The kind of text information displayed in the bin can be set freely with the Configuration Tool (button **CONFIG…** or ***Options » Configuration…***).

Furthermore, the right edge of the tool area can be moved, for example, to display the contents of the activated tool completely. Then, in case of the bin, you will be able to view the thumbnails together with all text information available. If you pull the right edge of the tool area completely to the left, the tool area will no longer be visible; if you pull it completely to the right, the control area will be hidden and the contents of the activated tool will be displayed in full.

To prepare the bin for a project you have to fill it with audio and/or video material first. For this perform the following:

CLIPSTER works with files in the operating system file system of Windows. Video and audio data should be stored on the designated video drive (disk stripe set) only. Other storage locations may be too slow for real-time operations. Furthermore, it is strongly recommended to use the disk stripe set for video and audio data only. Save other data on the usual system disks.

- Open a Windows file manager, for example, the Windows Explorer with the keyboard combination [Windows ( ) + E].
- In the file manager select a video file (either a file within a directory or the directory itself) on the disk array where the video data is stored.

  For a list of the supported file formats of CLIPSTER see section "Supported File Formats" on page A-5.
- Drag and drop the selected video file/directory to the contents area of the bin with the help of the mouse.

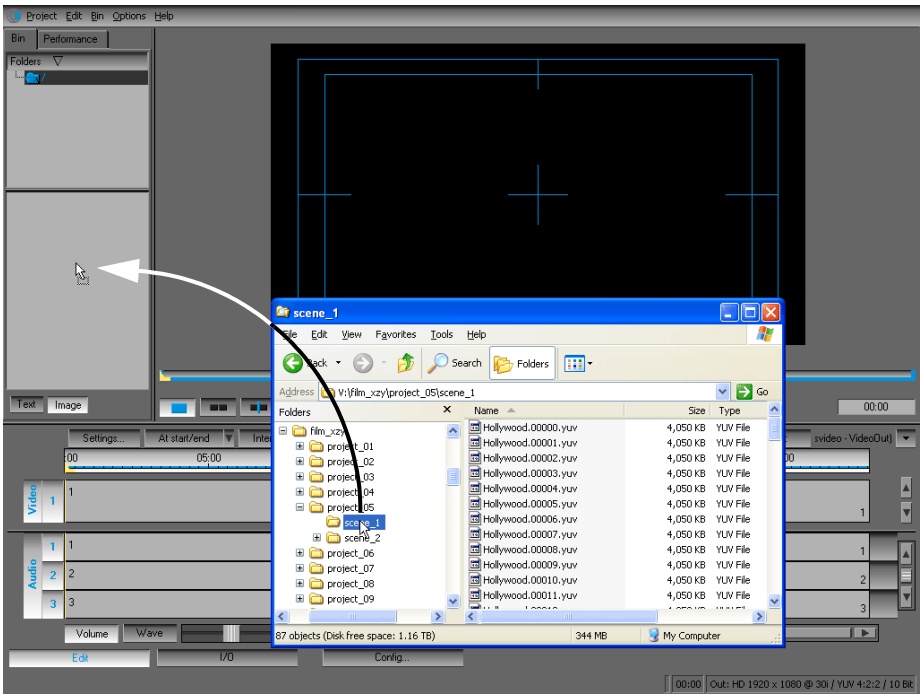


Figure 3-2: Drag and drop of clip to bin

The respective video data will then be made available to CLIPSTER and you will see a thumbnail of the material in the contents area of the bin:

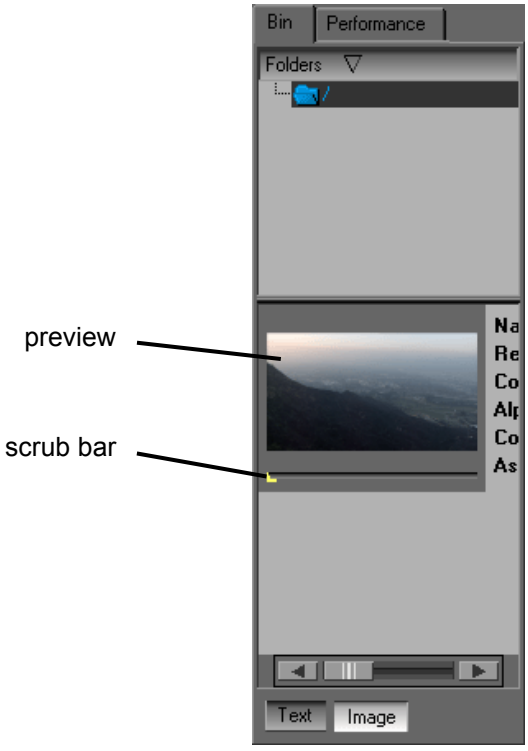


Figure 3-3: Clip in contents area of bin

- Add another, different clip to the bin by performing the drag-and-drop procedure again.

The new clip is added to the clip list of the bin as well. Now two clips are available in the CLIPSTER Edit Tool and you can start working with them. With the little scrub bar below each thumbnail you can preview the material and roughly select an inpoint for the respective clip. However, for our demonstration here we will leave the clips' inpoints as they are.

When audio shall be used in your project, you have to drag/add audio clips to the bin as well.

If you select another file than the first frame file in a video directory, the scrub bar cursor of the thumbnail (the clip's inpoint) will be set accordingly.

You may select more than one video directory in the file manager and drag them to the contents area of the bin. The respective clips will all be added to the bin.

You can also add clips to the bin via the menu option ***Add Clip*** on the context menu of the contents area.

Via the context menu of a clip in the bin (either audio or video) you can call up the clip's properties. Most of these can only be altered if the clip is not already present in the timeline.

By default CLIPSTER sets the video format of each clip added to the bin via a drag-and-drop procedure or the menu option ***Add Clip*** to the progressive field mode. If your material is in an interlaced video format, you have to call up the clip properties of the clip and change the field mode respectively.

3.2.2 Adding Clips to the Timeline

For the editing process CLIPSTER uses a timeline with several video and audio tracks where you can add the clips in the desired sequence as they should be played out in the end. You can then, for instance, define wipes, dissolves or cuts for the material. There is no need to worry about your original material being in different resolutions: CLIPSTER works resolution independent and is capable of handling material up to 2K in 10 bit.

To view your project on an additionally connected monitor, you have to configure the output format of the timeline accordingly. The setting of the output format (video raster) of the project can be configured with the button **SETTINGS...** above the timeline's scale.

To begin an editing work you have to drag the clips to the timeline of the CLIPSTER Edit Tool first:

During all works with CLIPSTER your original material will never be altered. The clips in the CLIPSTER software are only a representation of the original material on the video hard disks. All editing tasks are performed virtually.

- Select a clip in the contents area of the bin and drag and drop it into a video track:

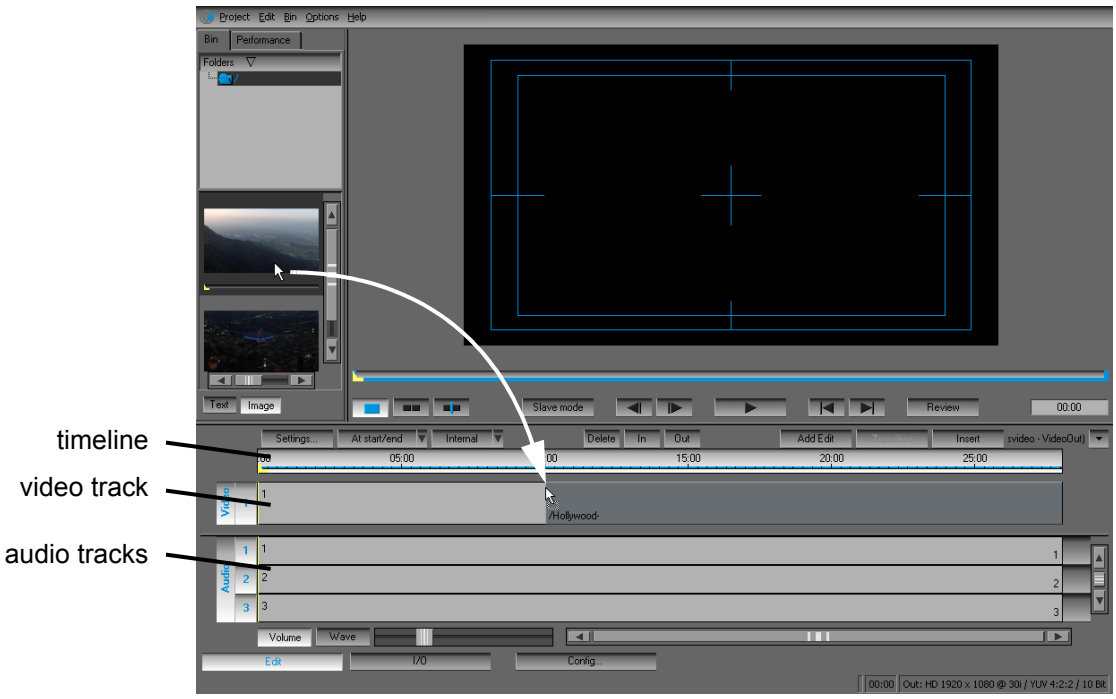


Figure 3-4: Drag and drop of clip to timeline

Once the mouse button is released, a representation of the clip is added to the timeline. However, its counterpart in the bin is neither removed nor deleted. It will remain there for future use so that you can add the clip (or other parts of the clip) to the video timeline again.

When adding a clip to an empty timeline track, the start of the clip (its inpoint) will automatically adjust itself to the beginning of the timeline (position 00:00 + offset).

This behavior can be changed via the button **INSERT**. This button switches between the insert and the overwrite mode of CLIPSTER. In the overwrite mode the position of the clip would be set during the drag-and-drop procedure by the mouse pointer where the clip is released.

- Now add the second clip of the bin to the timeline.

The starting point of the second clip (its position and inpoint) within the timeline will be set during the drag-and-drop procedure by the

mouse pointer where the clip is released. Its outpoint is defined by the length of the clip. However, these attributes can be changed easily after clips were added to the timeline, their position within the timeline as well as the in- and outpoints of the clips.

If the second clip is dropped in the middle of the first clip in the video track, the first one will be divided and the rest of the first clip will move to the end of the timeline.

This is also a behavior that can be changed via the button **INSERT**. In the overwrite mode the rest of the clip (or at least the contents of the first clip with the length of the second clip) would be overwritten.

For the rest of this tutorial we suppose that this has happened and that the first clip is divided into two by inserting a second clip in the middle of it.

Audio clips can be dragged from the bin to the audio tracks of the timeline area. If these audio clips incorporate more than one mono or stereo channel, the additional channels will be added to the other audio tracks below the selected one.

If you drag a video clip from the bin to the control area of the CLIPSTER Edit Tool, the software switches to the master mode where you can select the in- and outpoint of the clip frame accurately before adding it to the timeline. Once everything is set, you can drag the clip from its video overlay in the control area to the video track of the timeline.

3.2.3 Changing the View of the Timeline

Via the sliders below the audio tracks in the timeline area you can change the view of the tracks:

Figure 3-5: Timeline sliders

With the left slider you can zoom in or out of the timeline. If the slider is set to the leftmost point, you are able to see the whole contents of the timeline. When it is set more to the right, you will zoom into the timeline.

When you have zoomed into the timeline, you can change the viewing position of the timeline with the right slider. You can go to the end

of the timeline by pulling this slider to the right, and to the beginning of the timeline by pulling it to the left.

Via the Configuration Tool (button **CONFIG…** or ***Options » Configuration…***) you can set the way the CLIPSTER Edit Tool performs a zooming on the timeline. There you can set whether zooming should occur on the position of the timeline cursor or on the current viewing position of the timeline.

For our example project we aim at having only two clips in the video track. For this it is best to view the complete contents of the timeline:

- If appropriate, use the sliders below the audio tracks in the timeline area to zoom out of your project. For this move the left slider to its leftmost position until you see the complete timeline.

When you have changed the view of the timeline, you will see a screen like the following:

Figure 3-6: Project in timeline

The buttons right in front of the timeline tracks (video as well as audio) determine whether a track is enabled or disabled (audio: muted).

With the button **SETTINGS…** above the timeline's scale you can determine the output format (video raster) of the project. Here you can also configure the size of the video and/or audio tracks. There is also a setting available that performs an autoscaling of the material in the timeline if the resolution differs from the configured output raster.

As a next step we want to delete one of the clips of the timeline and change the sequence of the remaining clips.

3.2.4 Moving Clips in the Timeline

Because for this tutorial we want to have only two clips in the video track, the second and the first clip (in this particular order), we have to delete the second part of the first clip and then change the sequence of the remaining two clips. For this perform the steps as described below:

- Select the second part of the first clip (the last clip present in the timeline) with a click of the mouse and delete it with the keyboard key [Del].

The representation of the clip in the timeline will be deleted and you will see two remaining clips in the video track of the timeline:

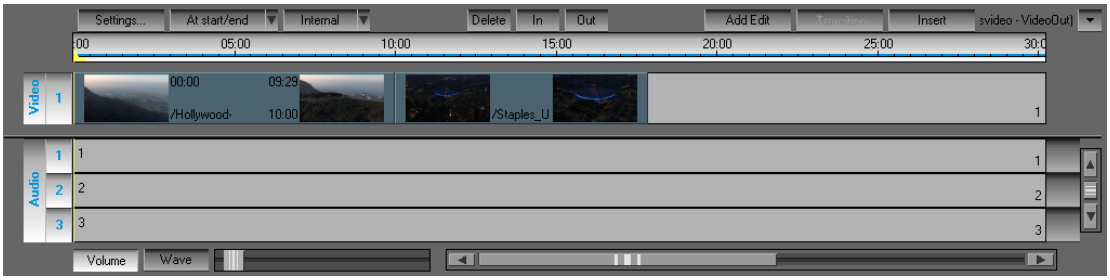


Figure 3-7: First and second clip in timeline

Now we want to change the sequence of the remaining two clips:

- Select the second clip with the mouse and drag it along the timeline to the beginning of the timeline:

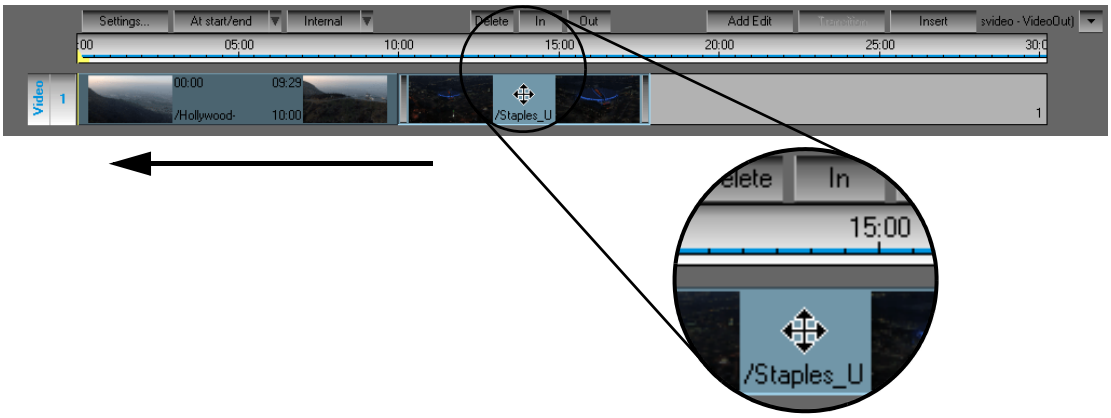


Figure 3-8: Changing the position of the clip

When the dragged clip reaches certain elements on the timeline, it will automatically align itself to these elements. If your first clip is long-

er than the second clip, you will notice that the clip automatically adjusts itself to the end of the first clip and, when dragged further, to the beginning of the timeline. This behavior is called the snapping mode of CLIPSTER.

The snapping mode is a very useful feature if you want to position clips in the timeline. It reacts not only to the end of clips or the starting point of the timeline but also to the position of the timeline cursor or the set in- and outpoint of the timeline. You can disable the snapping mode and activate a fine tuning mode by pressing the [Shift] key.

- Once the dragged clip reaches the beginning of the timeline, release and drop it.

With the CLIPSTER Edit Tool in the insert mode the rest of the video material in the timeline will move backwards in the timeline as soon as the clip is dropped.

After changing the sequence of the clips this tutorial goes on with a description how to change the in- and outpoints of clips in the timeline.

3.2.5 Manipulating In- and Outpoints in the Timeline

The first clip (now the second clip in the timeline) was cut during the adding of the second clip to the timeline. Thus it already provides a trimmed outpoint. However, the second clip (now the first clip in the timeline) was added with its full length. If a transition should be set between these two clips, at least one of their in- and outpoint has to be trimmed, either the outpoint of the first or the inpoint of the second clip. To demonstrate how to add a transition between the two clips, we now want to change the outpoint of the first clip in the timeline:

- Select the end of the first clip and move it to the left to trim its outpoint (tail).

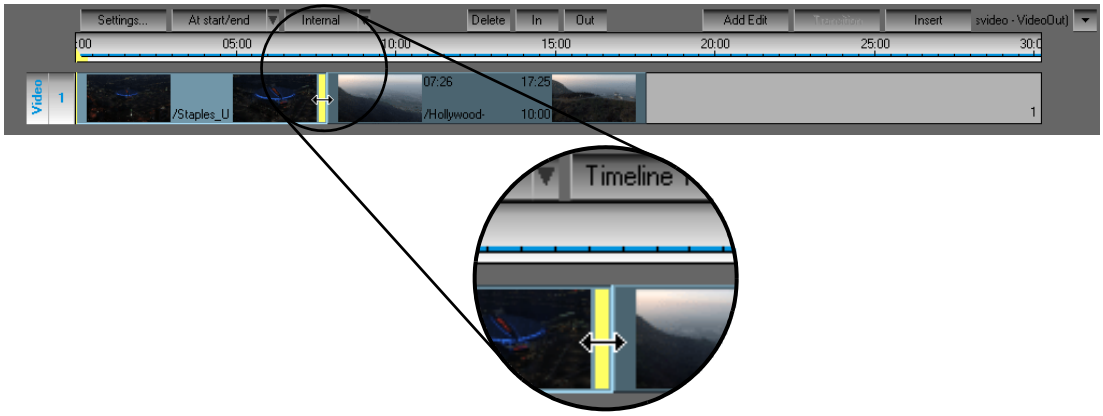


Figure 3-9: Changing of outpoint

As long as the insert mode of the CLIPSTER Edit Tool is active, the second clip will automatically adjust its position on the timeline respectively.

While trimming the outpoint you will notice a blue line above the selected clip:

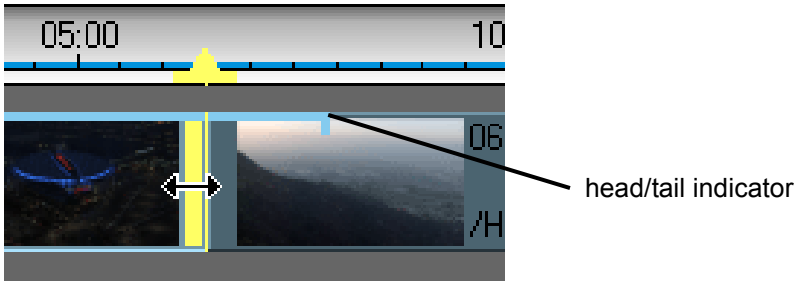


Figure 3-10: Display of original length of clip

This line shows the original length of the clip. You can use it to determine easily how much tail is available to, for example, create a transition.

- Once sufficient tail is available, release the outpoint handler and drop it.

With this you have manipulated the outpoint of the clip. The same way you can, of course, change inpoints as well.

You cannot change the in- and outpoint of a clip beyond the limits of its original material on the video hard disks indicated by the head/tail indicator.

As a last step in our example project we now want to add a transition to the cut between the first and the second clip on the timeline.

3.2.6 Adding Effects to the Timeline

Adding effects and playing out the timeline of the Edit Tool in real time is one strength of CLIPSTER. In this last step to introduce the CLIPSTER Edit Tool we want to add a transition to the cutting point between the first and the second clip of our example project. For this perform the following:

- Via the controls ( ) or the keyboard shortcuts [S] (jump forwards) and [A] (jump backwards) you can move the timeline cursor to the cutting points on the timeline. Use the respective button or key to go to the cutting point between the first and the second clip:

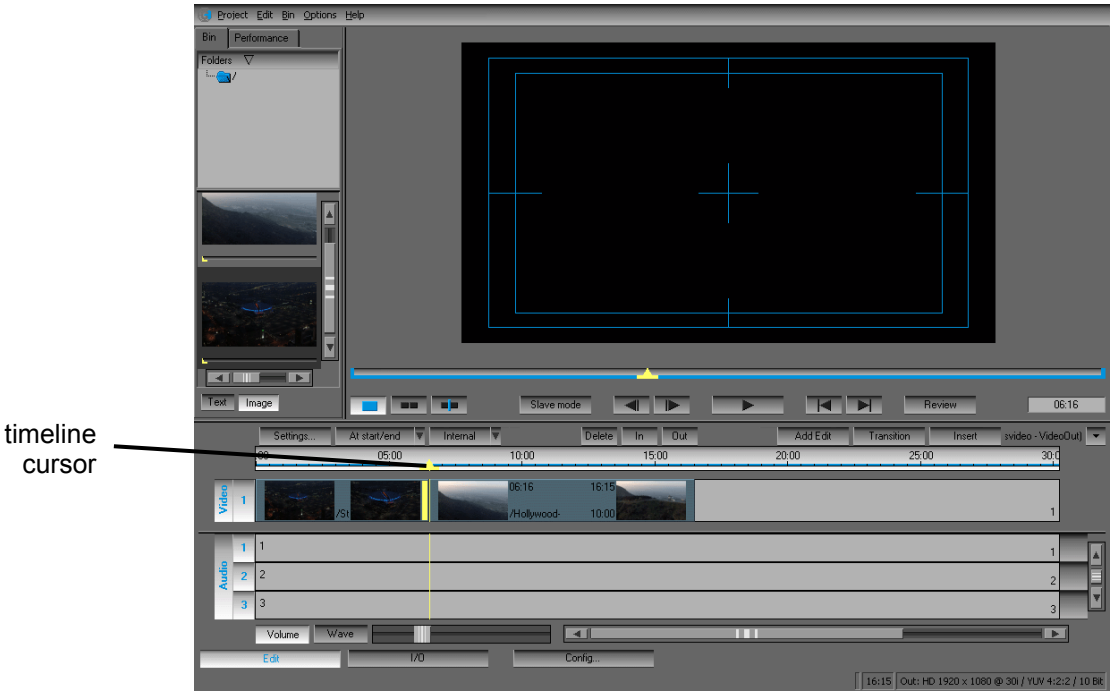


Figure 3-11: Timeline cursor at cutting point

This will make the button **TRANSITION** available in the CLIPSTER Edit Tool user interface.

- Select the button **TRANSITION**.

A transition appears between the two clips:

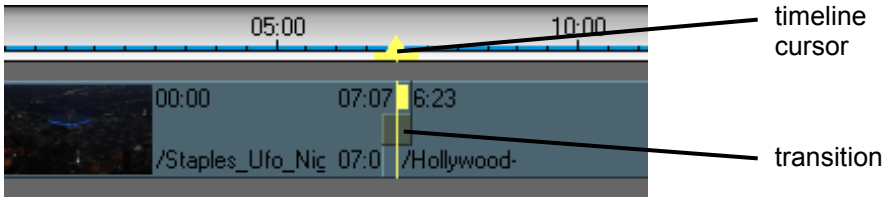


Figure 3-12: Transition on timeline

Via the context menu of the transition you can set the properties of the transition, for example, change the type of wipe for the transition:

- Invoke the context menu on the transition in the timeline (usually with a right-click of the mouse) and select the menu option ***Properties***. Alternatively, you can also double-click the transition to call the **'Transition Operator configuration'** window directly.

- In the **'Transition Operator configuration'** window select as a transition, for example, `Vertical Wipe` and confirm your selection with the **OK** button.

This window also provides a scrub bar which can be used to preview the transition on the video overlay in the main window.

After the confirmation a transition of the selected type is applied to the cut between the two clips. Use the controls of the CLIPSTER Edit Tool to review the last transition or to play out the complete timeline in real time.

In the insert mode there must be enough head and/or tail available of at least one clip to set a transition, otherwise the button **TRANSITION** will be unavailable. If there are not enough head and tail available, you can use the trim mode of the CLIPSTER Edit Tool to change the in- and outpoint of the adjacent clips to a cutting point. If you are in the overwrite mode of the timeline, the CLIPSTER Edit Tool will create the head and tail necessary for the transition automatically.

Clips in the timeline can be cut with the button **ADD EDIT**. The cut will be applied to the position of the timeline cursor. If a track is disabled, no cutting will be performed.

You can delete a transition the same way you delete a clip from the timeline. Simply select the transition and press the key [Del] on your keyboard.

Every clip provides timeline properties the same way a transition does: Invoke the context menu of the clip and select the menu option ***Properties*** (or simply double-click the clip on the timeline). Via the timeline properties you can adjust zooming and panning or set color/gamma corrections for the respective clip. All settings can be transferred easily to other clips present in the timeline.

Our example project is now complete and you can play out your material in the timeline in the selected output format (button **SETTINGS…**) or perform other editing tasks.

3.3 Exiting the Program

To end the current CLIPSTER Edit Tool session perform the following:

There is no way to end the Edit Tool alone. When you exit the Edit Tool, the whole CLIPSTER software will shut down. Therefore, it is recommended to finish all tasks, such as a record or a play-out operation, beforehand. Otherwise the respective task may get interrupted.

- Select the option ***Exit*** on the ***Project*** menu or press the key combination [Alt + F4] alternatively.

You may also use the menu option ***Exit*** of the CLIPSTER icon on the menu bar of the user interface (see section “Exit” on page 7-2).

The CLIPSTER software will be closed and you can then, for instance, shut down the video system.

The Tool Area

On the left side of the CLIPSTER Edit Tool directly below the menu bar you can find the tool area. It may show you depending on the optional features available or the currently activated CLIPSTER module as well as task mode various tools that can be used during your work with CLIPSTER. The different tools are provided as tabs to switch easily between them.

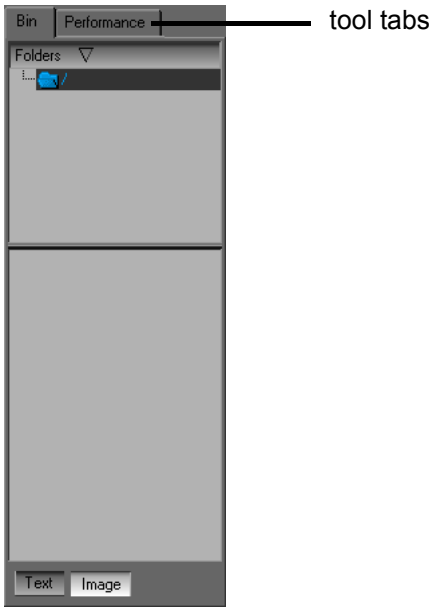


Figure 4-1: The tool area

When you activate one of the inactive tool tabs, the tool area will change its appearance and the respective tool will be displayed in the tool area. Among the tools you can find, for example, the bin which provides initial access to the video material stored on your system, or the performance monitor to assess the real-time operation of the CLIPSTER video system, for example, during a play-out of the timeline.

This chapter describes the features of the tool area as well as the default tools available in the CLIPSTER Edit Tool module in detail. These default tools may also be available in the other software modules of CLIPSTER.

4.1 Changing the Size of the Tool Area

Some tools may not be shown in full, i.e. with all items or information displayed in the currently visible area of the tool area. To get a better view on the individual tools or make items visible that are otherwise hidden you can change the size of the tool area.

For this perform the following:

- Move the outer right edge of the tool area to the left or to the right with the mouse.

Then you will be able to view, for example, the thumbnails of clips present in the bin together with all their text information.

Figure 4-2: Adjusting the size of the tool area horizontally

If you pull the right edge completely to the left, the tool area will no longer be visible and thus can be turned off. If you pull the right edge completely to the right, the control area will be hidden and you can see horizontally the contents of the respective tool in full.

Additionally, you can alter the size of the tool area vertically:

- Move the lower edge of the tool and control area which is also the upper edge of the timeline area up or down with the mouse to enlarge or reduce the areas.

The vertical size of the tool and control area will adjust itself automatically.

Figure 4-3: Adjusting the size of the tool area vertically

Further information about adjusting the size of the timeline area can be found in section “Changing the Layout of the Timeline Area” on page 6-5.

4.2 The Bin

After starting the CLIPSTER software and thus the CLIPSTER Edit Tool the bin is by default activated in the tool area.

If the bin is not displayed in the tool area of the CLIPSTER Edit Tool, simply select the tab **Bin** in the tool area to activate it.

Then the area will look similar to the following figure:

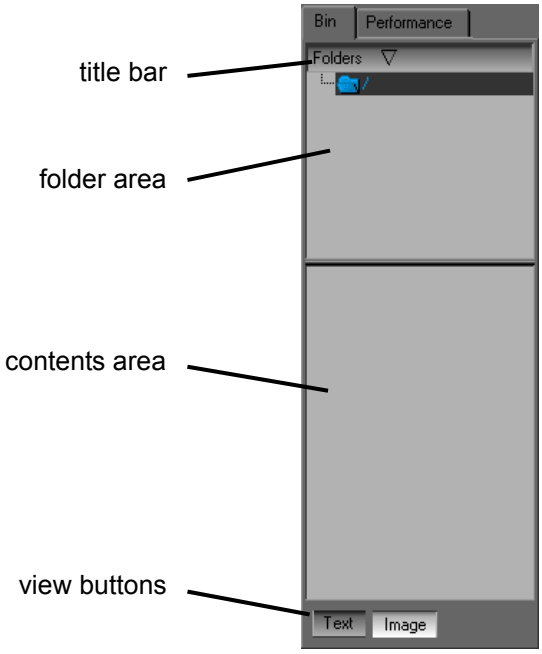


Figure 4-4: The bin

With the bin you can perform a clip and project management by creating folders and sorting your video and audio material into them. Furthermore, you can preview your material via thumbnails and select a preliminary inpoint for the respective clip.

For this the bin provides the following elements:

Most areas or items of the bin provide a context menu to make the various functions of the bin available to the user.

title bar	With the title bar you can change the layout of the bin or sort your created folders present in the folder area.
folder area	In the folder area you can create folders and directories to sort and structure your video and audio material. This way you can perform a clip and project management.

contents area	In the contents area you can see the video or audio material already added to the bin and sorted into the folders via their thumbnails or text information. If the thumbnail view is activated, a scrub bar to preview your material in still images and to set roughly the inpoint of the respective clip is provided by each thumbnail. You can administer the clips directly or add new clips to the bin with the help of the context menu of the contents area.
view buttons	Via the view buttons of the bin you can select whether the clips in the contents area shall be seen as thumbnails with text or with their text information only.

This section explains all features provided by the bin of the CLIPSTER software in detail.

4.2.1 Configuring the Bin

With the bin you can perform a clip and project management: You can structure the clips by sorting them to different folders and you can preview the clips as well as access additional information via their text display in the bin. To serve all these functions at once, you can change and configure the layout of the bin freely:

– The areas of the bin can be arranged horizontally or vertically.
– The appearance of clips in the contents area can be changed.

Both procedures are explained in this section.

Changing the Layout of the Bin

To provide, for example, for a better view on the material in the bin, the areas of the bin, the folder and the contents area, can be arranged horizontally or vertically via the title bar of the folder area. For this do the following:

• Call up the context menu of the bin’s title bar (usually with a right-click of the mouse).

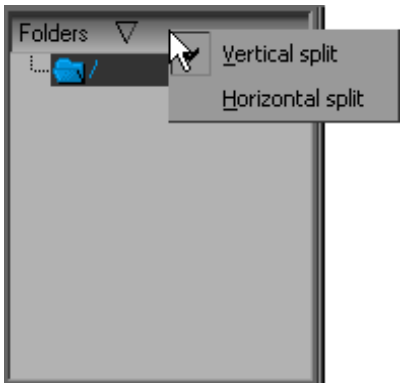


Figure 4-5: Context menu of title bar

- Select the horizontal or vertical appearance of the bin from the context menu.

The context menu to change the layout of the bin can also be called on the area where the view buttons are located.

The layout of the bin will be set accordingly.

Additionally, you have the possibility to change the layout of the tool area to get a better view on the bin or make items visible that cannot be seen in the visible part of the tool area (see section “Changing the Size of the Tool Area” on page 4-2).

Changing the View of Clips

Via the view buttons at the bottom of the bin you can set whether the clips in the contents area shall be seen as thumbnails with text or with their text information only.

Use the button **TEXT** to view the clips in the contents area with their text information only:

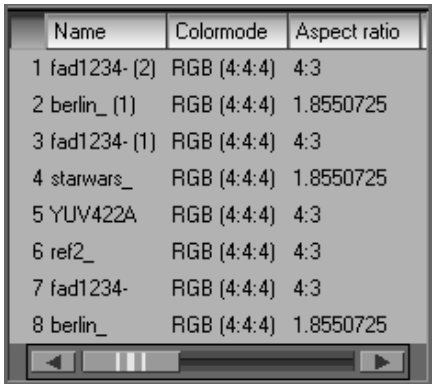


Figure 4-6: Contents area with text information

The kind of text information displayed in the contents area of the bin can be set freely with the Configuration Tool of CLIPSTER (see “CLIPSTER Configurations” user guide for more information).

In this view you can most easily sort the clips in ascending or descending order by clicking on the column heading that the clips should be sorted by (see also section “Sorting Clips” on page 4-17). The sorting will also be available after switching to the thumbnail view of the bin again.

A scrub bar to preview and set an inpoint is available in the thumbnail view of the bin only.

With the button **IMAGE** you can activate the view of the thumbnails again.

For the thumbnail view of the contents area there are also text information available that can be activated and set via the Configuration Tool as well (see above). These texts will then appear to the right of the thumbnail (as shown in figure 4-12 on page 4-16).

4.2.2 Adding Clips to the Bin

Before you can begin to work with clips in the CLIPSTER Edit Tool you have to fill the bin with clips available on the video system. There are three ways to fill the bin with clips of either video or audio:

1. You can open a standard file manager (e.g. the Windows Explorer) and drag and drop the clips, either a file within a directory or the directory itself, to the contents area of the bin,
2. you can use the menu option ***Add Clip*** on the context menu of the bin’s contents area to fill the bin with contents, or
3. you can capture clips with CLIPSTER via the CLIPSTER I/O Tool.

The first two procedures will be described in this section.

CLIPSTER works with files in the operating system file system of Windows. Video and audio data should be stored on the designated video drive (disk stripe set) only. Other storage locations may be too slow for real-time operations. Furthermore, it is strongly recommended to use the disk stripe set for video and audio data only. Save other data on the usual system disks.

By default CLIPSTER sets the video format of each clip added to the bin via a drag-and-drop procedure or the menu option ***Add Clip*** to the progressive field mode. If your material is in an interlaced video format, you have to call up the clip properties of the clip and change the field mode respectively (see section “Changing the Properties of Clips” on page 4-19).

The third mentioned procedure is in detail described in the “CLIPSTER I/O Tool” user guide. It will also add clips to the bin of the CLIPSTER software which will then already be set up correctly and no manual configuration will be necessary for these bin clips, for example, to correct the field mode (see attention note above).

Adding Clips to the Bin with a File Manager

In the following it is described how to use a standard file manager of the operating system to move video or audio clips to the bin:

- Open a Windows file manager, for example, the Windows Explorer with the keyboard combination [Windows ( ) + E].
- In the file manager select an audio or video file (either a file within a directory or the directory itself) on the disk array where the video data is stored.

  For a list of the supported file formats of CLIPSTER see section “Supported File Formats” on page A-5.
- Drag and drop the selected file/directory to the contents area of the bin with the help of the mouse.

  You can also drop the file/directory on a folder in the folder area of the bin (e.g. the root folder).

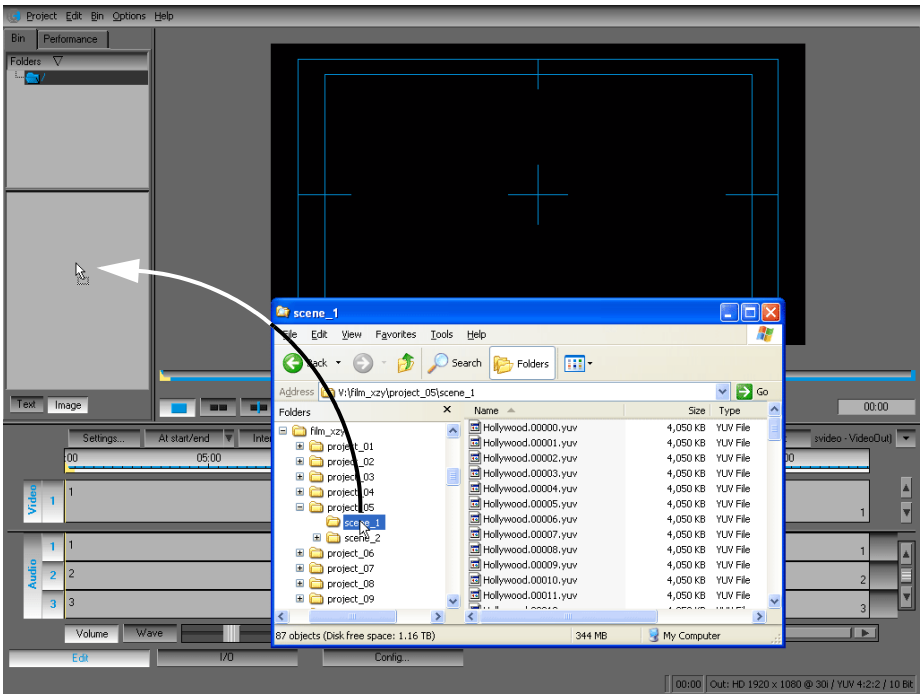


Figure 4-7: Drag and drop of clip to bin

You may select more than one directory (with the [Ctrl] key pressed) and drag them to the contents area of the bin. The respective clips will all be added to the bin.

With video, if you select another file than the first frame file in a video directory, the scrub bar cursor of the thumbnail (a possible clip's inpoint) will be set accordingly.

After a drag-and-drop procedure from a file manager folders in the folder area may be created automatically. Then they will imitate the directory structure present on the video hard disks and the video files will be already sorted into the respective folders. This behavior can be configured with the Configuration Tool of the CLIPSTER software (see "CLIPSTER Configurations" user guide for more details).

The same applies to audio multi-clips: if an audio multi-clip is dragged to the contents area of the bin, a subfolder will be created automatically which will then contain the individual audio clips. For more information about multi-clips see section "Details about Clips" on page 4-10.

The respective data will then be made available to CLIPSTER and you will see a thumbnail of the material in the contents area of the bin. By repeating the described steps above you can add as many clips to your bin as you need.

Once at least one clip is available in the bin, you can start working with the CLIPSTER Edit Tool and add the clip to the timeline (see section “Adding Clips to the Timeline” on page 6-2).

Adding Clips to the Bin Using the ’Add Clip’ Menu Option

You can use the ***Add Clip*** menu option to select video or audio clips that you want to move to the contents area of the bin.

For a list of the supported file formats of CLIPSTER see section “Supported File Formats” on page A-5.

- Select the ***Add Clip*** menu option on the context menu of the bin’s contents area.

This opens a standard dialog window of the operating system for the selection of a file:

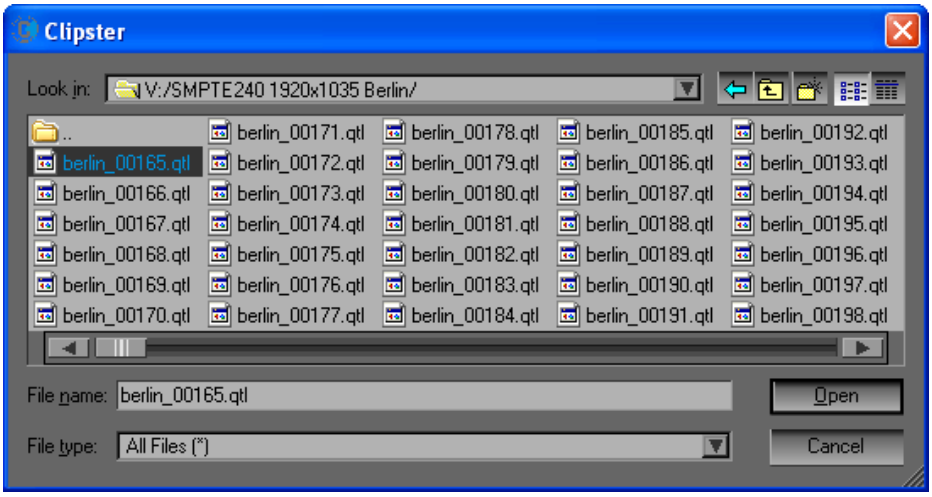


Figure 4-8: Dialog window to add a clip to the bin

- Select a video or audio file from the list box or enter its name in the entry field **File name**.

  If the list box does not contain the desired file name, make sure that the correct drive and directory has been selected.

  If you select another file than the first video frame file in a video directory, the scrub bar cursor of the thumbnail (a possible clip’s inpoint) will be set accordingly.

- Confirm your selection with the button **OPEN**.

The selected video or audio clip will then be loaded in the contents area of the bin. By repeating the described steps above you can add as many clips to your bin as your project needs.

Once at least one clip is available in the bin, you can start working with the CLIPSTER Edit Tool and add the clip to the timeline (see section “Adding Clips to the Timeline” on page 6-2).

4.2.3 Details about Clips

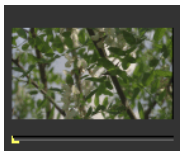
During the adding of clips to the bin, the clips are checked for their type, length, resolution, bit depth, etc. If set accordingly, the text information of the clips in the bin will show you these information about the clips (see also section “Changing the View of Clips” on page 4-5). This section provides some details about clips in the CLIPSTER software.

By default CLIPSTER sets the video format of each clip added to the bin via a drag-and-drop procedure or the menu option ***Add Clip*** to the progressive field mode. If your material is in an interlaced video format, you have to call up the clip properties of the clip and change the field mode respectively (see section “Changing the Properties of Clips” on page 4-19).

The Clip Types

You can add video, audio and so called multi-clips to the contents area of the bin:

video clip:

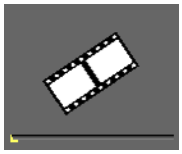


Video clips are seen in the contents area of the bin usually with their thumbnail previews. With the scrub bar below the thumbnail you can preview the clip in still images and select an inpoint of the clip roughly (if enabled via the CLIPSTER Configuration Tool).

audio clip:

To use audio in the CLIPSTER Edit Tool you have to make the files available the same way as with video files: You have to add them to the bin as described in section “Adding Clips to the Bin” on page 4-6.

CLIPSTER supports audio clips that contain more than one mono or stereo channel (multiple channels) in the audio file. These clips will be available as one clip in the bin, but when added to the timeline, the additional channels will be added to the other audio tracks below the selected one.

invalid clip:  This icon indicates an invalid video clip. Either you have to set the properties of this clip correctly via its context menu or provide the right video material on the video hard disks to receive a valid clip in the bin.

multi-clips: Multi-clips are clips of either video or audio that are present in the bin as one clip but consist of several individual clips on the video hard disk array. Usually, these individual clips are stored in a subdirectory each, and all subdirectories are located under one main directory. When adding a multi-clip to the bin via a drag-and-drop procedure (see section “Adding Clips to the Bin with a File Manager” on page 4-7), you may select the main directory as a clip and add it to the bin. All individual clips will then be available as one clip in the bin. Even when dragged to the timeline, the multi-clip is handled as one clip.

However, the CLIPSTER software needs several parameters to recognize a clip as a multi-clip. Because of this only the CLIPSTER software is capable of creating a valid multi-clip, for example, during the finalization of a project (see section “Finalize…” on page 7-7) or when recording a clip with the CLIPSTER I/O Tool. Then, when the clip provides more than 20,000 frames, the CLIPSTER software will divide the single clip into several subdirectories under one main directory. This main directory can be added to the bin as a multi-clip. Further information about the finalization process and the storing of a clip with more than 20,000 frames can be found in section “Finalize…” on page 7-7.

When you add an audio multi-clip to the bin, a thumbnail of the multi-clip will be added to the contents area of the bin as described above. In addition, a folder will be created in the folder area of the bin that will carry the name of the main directory and contain all individual clips as they are available in the multi-clip. This behavior is useful due to the fact that, contrary to video multi-clips, you cannot change the properties of an audio multi-clip via its context menu. If you want to change the properties of an audio multi-clip, you have to change them for each clip individually in the created subfolder of the bin (see section “Changing the Properties of Clips” on page 4-19).

pending clip:

Clips of either audio or video that were not completely recorded, receive this icon. Then you will know that parts of this clip may be missing. However, you can still use them in the timeline of the CLIPSTER Edit Tool and perform all works with them.

unknown:

Files of an unknown type, i.e. files where CLIPSTER is not able to determine whether these are audio or video files, will get this icon. These files cannot be used in the CLIPSTER software.

Real-time Capability of Clips

With an optimized video system and a video hard disk array that incorporates fully functioning hard disks, CLIPSTER can handle film material up to 2K in RGB 10 bit in real time. If you want to process material of a higher resolution or bit depth, the real-time capability of CLIPSTER cannot be ensured, even for a simple play-out of the material.

Clips that may cause trouble because of their resolution, bit depth and/or file size may invoke a warning message when added to the bin. Then the clips will be visibly marked in the contents area of the bin: For example, in the thumbnail view their thumbnail as well as the respective text information that is the cause for this warning will be colored in yellow:

This behavior, i.e. the warning message as well as the marking of a clip in the contents area of the bin, can be configured with the setting **Warn if base directory mismatch** (group **General**) in the Configuration Tool of the CLIPSTER software (see “CLIPSTER Configurations” user guide for more details).

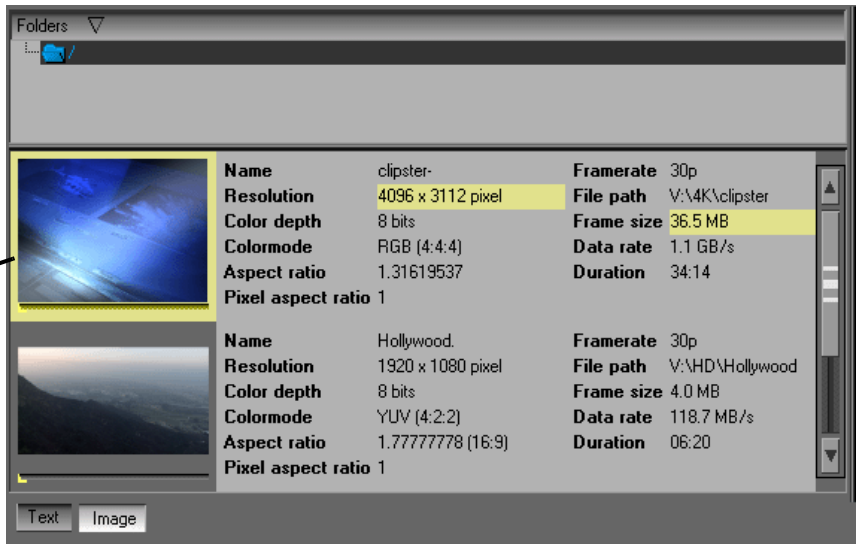


Figure 4-9: Clip marked in the bin

In the figure above the top clip is a 4K clip. Because CLIPSTER cannot handle material of this resolution and image size in real time the respective values as well as the thumbnail are marked in yellow.

When added to the timeline the clips will be additionally tested for their instant real-time capability. If they exceed the real-time capability of CLIPSTER, they will be a subject for prerendering (see section “Prerendering of Timeline Elements” on page 6-38).

The location where the clip is stored may also be the reason for a real-time warning. When you add a clip to the bin that is not located on the defined video hard disk array, you will be notified as well. This occurs because the storage location of the clip may not be real-time capable, i.e. it may not be able to provide enough data transfer rate and speed to read the vast amount of data in time. The location of the real-time capable storage is a configurable setting in the Configuration Tool of CLIPSTER (**System base video directory**, see “CLIPSTER Configurations” user guide). This setting is also used during the exchange of project files between different CLIPSTER video systems.

The **System base video directory** should always be configured to the native video hard disk array (stripe set) of CLIPSTER (see “CLIPSTER Configurations” user guide). Other storage locations may be too slow for real-time operations.

4.2.4 Working with Folders in the Bin

The folder area of the bin is used to create folders and directories to sort and structure your video and audio material by sorting them to different folders. This way you can perform a clip and project management. In this section you can read what to do to create folders and how to administrate them.

For most of these tasks the context menu of the folders in the folder area is used (usually invoked with a right-click of the mouse). It provides different folder related functions, such as the creation of a new folder in the folder area or the renaming of an existent one.

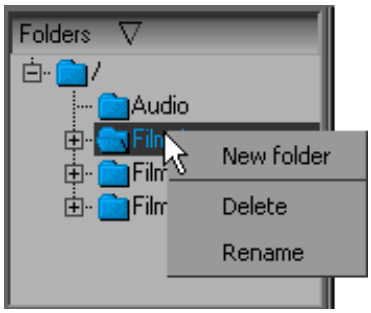


Figure 4-10: Context menu of a folder in the folder area

Creating Folders

Via the context menu you can create a new folder manually in the folder area of the bin:

- Call up the context menu on a folder in the folder area of the bin and select the menu option ***New folder***.

This will create a new folder in the folder area. It will be placed as a subfolder below the selected folder where the context menu was invoked. After this you have to assign a name to the newly created folder.

- Enter the name of the folder via the keyboard and confirm it with the [Enter] key.

Then the new folder will be present in the folder area of the bin and you can use it to sort your audio and/or video material into it (see section “Working with Clips in the Bin” on page 4-16).

Folders can also be created automatically with a drag-and-drop procedure from a file manager (see section “Adding Clips to the Bin with a File Manager” on page 4-7).

Sorting Folders

As soon as folders are available in the folder area of the bin, you can sort them in descending or ascending order. If your project contains a lot of folders in the bin, this will make it easier for you to find an individual folder. To sort the folders do the following:

- Simply click on the title bar with the mouse.

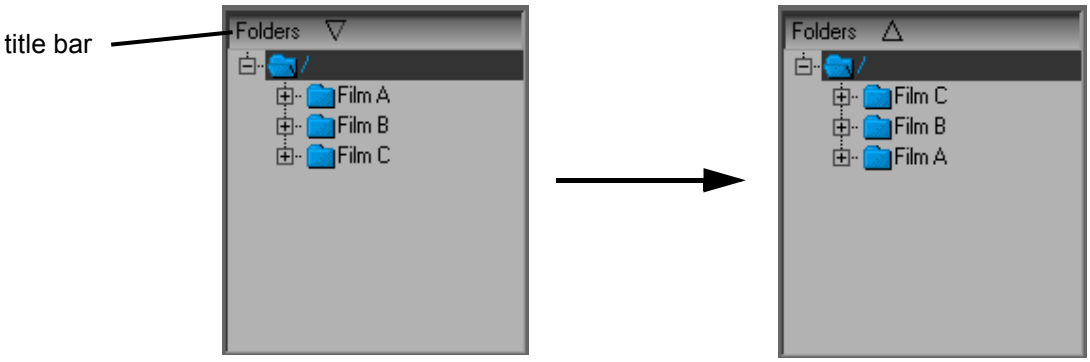


Figure 4-11: Sorting the folders

This switches between a descending and ascending order of the folders in the folder area. The type of order will be indicated by the arrow to the right of the title bar.

Renaming Folders

To rename folders and thus to give them a different name after they were created in the folder area of the bin perform the following:

- Call up the context menu on a formerly created folder in the folder area of the bin and select the menu option ***Rename***.

After this you can change the name of the respective folder:

- Enter the new name of the folder via the keyboard and confirm it with the [Enter] key.

Then the selected folder will be given the new name.

Only previously created folders can be renamed. The root folder cannot be changed in any respect.

Deleting Folders

Folders can be deleted the same way they are created, via the context menu:

- Call up the context menu on a formerly created folder in the folder area of the bin and select the menu option ***Delete***.

After this a warning message will appear on the screen.

- If you want to delete the folder and all clips that are sorted into it, confirm the warning message.

This will delete the respective folder where the context menu was invoked. If clips were sorted into the selected folder, they will be deleted as well.

Only formerly created folders can be deleted. The root folder cannot be changed in any respect.

4.2.5 Working with Clips in the Bin

In the contents area of the bin you can see the video or audio material already added to the bin and sorted into the folders via their thumbnails or text information. If the thumbnail view is activated, a scrub bar to preview your material in still images and set roughly the inpoint of the respective clip is provided by each thumbnail.

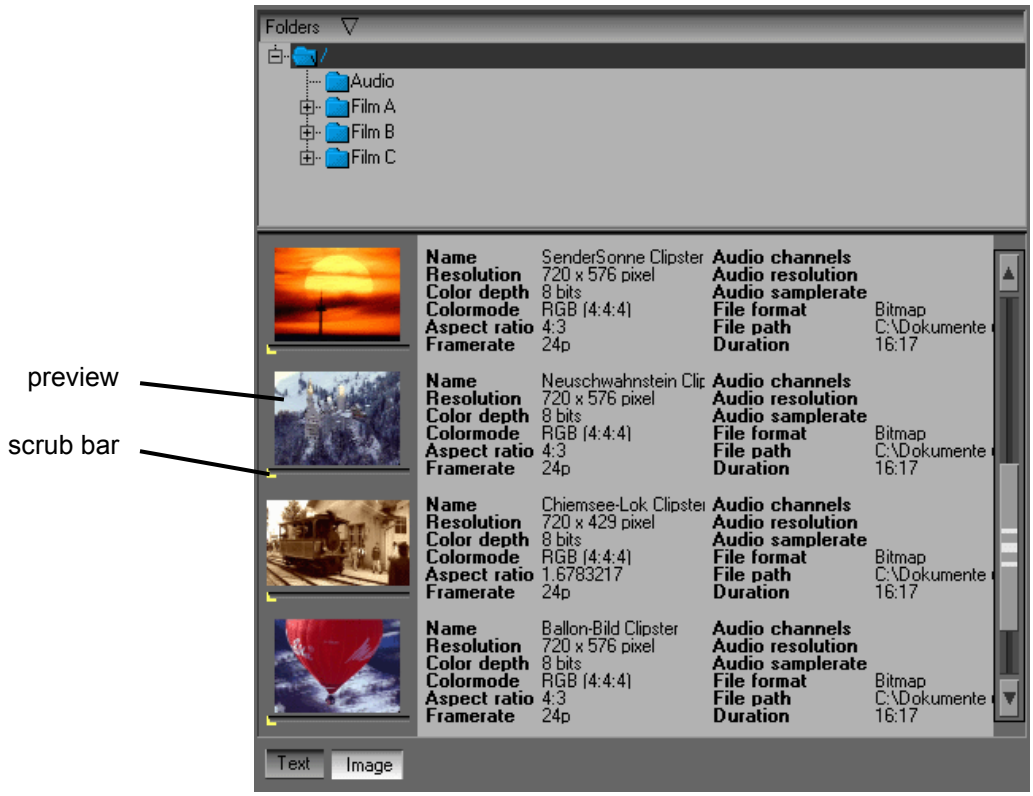


Figure 4-12: Clips in the contents area of the bin

In this section you can read what to do to administer the clips.

For some of these tasks the context menu of the clips in the contents area is used (usually invoked with a right-click of the mouse). It provides different clip related functions, such as the adding of a new clip to the contents area of the bin or altering its properties.

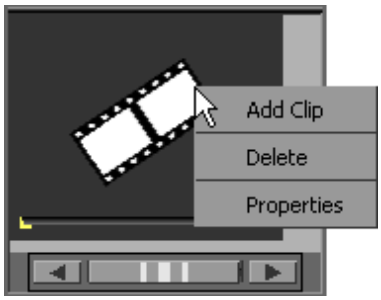


Figure 4-13: Context menu of clip in bin

If the contents area is empty of clips and you call up the context menu, only the menu option ***Add Clip*** will be available.

How to add clips to the contents area of the bin is in detail described in section “Adding Clips to the Bin” on page 4-6.

Sorting Clips

When the text information view is selected for the clips in the contents area of the bin (see section “Changing the View of Clips” on page 4-5), you can sort the clips easily:

- In the text information table simply click on the respective column heading to sort the entries under this column in ascending or descending order.

Then the clips will be sorted accordingly. The sorting will also be available after switching to the thumbnail view of the bin again.

The sorting of the clips in the bin can also be set with the Configuration Tool of CLIPSTER as well (see “CLIPSTER Configurations” user guide for more information).

Sorting Clips into Folders

As soon as clips are present in the bin you can sort them into previously created folders (see section “Creating Folders” on page 4-14) to keep your project file in order and thus to perform a clip and project management.

- To sort the clips into folders simply select the clips in the contents area of the bin and drag and drop them to the respective folder in the folder area.

They are then present in this folder and you can view them again in the contents area when the folder is selected from the folder area.

If you drag and drop the clips while the [Ctrl] key is pressed, the clips will be copied instead of moved.

Preparing Clips for Editing Purposes

To begin an editing process you have to use the clips of the bin and drag and drop them either to the control area or directly to the timeline of the CLIPSTER Edit Tool.

If a clip is shown in the contents area of the bin in the thumbnail view, you can use the scrub bar below each thumbnail to preview the material and roughly select an inpoint for the respective clip:

The feature to select an inpoint can be enabled or disabled via the Configuration Tool of CLIPSTER. When disabled, every time you add a clip to the timeline of the CLIPSTER Edit Tool the full clip will be added to the timeline regardless of the set scrub bar cursor (see “CLIPSTER Configurations” user guide for more information).

By default CLIPSTER sets the video format of each clip added to the bin via a drag-and-drop procedure or the menu option ***Add Clip*** to the progressive field mode. If your material is in an interlaced video format, you have to call up the clip properties of the clip and change the field mode respectively (see section “Changing the Properties of Clips” on page 4-19).

- Move the scrub bar to the left or right to preview your material and/or to select an inpoint:

Figure 4-14: Preview and setting of inpoint of the bin material

While adding a clip to the bin, you can already set the position of the scrub bar cursor and thus define a possible inpoint for the clip. During the adding (see section “Adding Clips to the Bin” on page 4-6) select the particular frame file where the inpoint should be set and add it to the bin. The scrub bar cursor of the thumbnail will be set accordingly.

- After that simply select the clip and drag it either to the control area or a video or audio track of the timeline to start your editing work.

The CLIPSTER Edit Tool will use the selected inpoint as the starting point of your clip if this feature is enabled. However, if you drag a video clip from the bin to the control area of the CLIPSTER Edit Tool, the software switches to the master mode where you can select the in-

and outpoint of the clip frame accurately before adding it to the timeline (see section “The Master Mode” on page 5-9).

Changing the Properties of Clips

In the bin you can call up the properties of clips. Then you can, for example, assign flags to clips or change their properties, such as their names or video formats. Use the opening window to change the clip’s properties if CLIPSTER does not recognize its video or audio format correctly:

- Call up the context menu on a clip present in the contents area of the bin and select the menu option ***Properties***.

This will open the **’Clip properties’** window where you can change the clip’s properties.

Some clip properties can only be altered if the clip is not already present in the timeline. Furthermore, contrary to video the properties of audio multi-clips cannot be changed. You have to change them individually by selecting the properties of each audio clip in the provided bin subfolder of the audio multi-clip.

The description of the **’Clip properties’** window is not part of this user guide. It is in detail described in the “CLIPSTER Configurations” user guide.

Deleting Clips

To delete a clip from the contents area of the bin perform the following:

- Call up the context menu on the clip that you want to delete in the contents area of the bin and select the menu option ***Delete***.

After this a warning message will appear on the screen.

- If you want to delete the clip from the bin as well as all its representations present in the timeline, confirm the warning message.

This will delete the selected clip (either video or audio) from the contents area of the bin. If the clip was already added to the timeline, its representations there will be deleted as well.

4.3 The Performance Monitor

With the performance monitor of CLIPSTER you can monitor the hard disk accesses of the CLIPSTER software to the video data in real time. Thus you can verify, for example, the status of the hard disks of the storage array as well as of certain files on the array.

After starting the CLIPSTER software and thus the CLIPSTER Edit Tool the bin is by default activated in the tool area. Once you selected the tab **Performance** in the tool area, the area will look similar to the following figure:

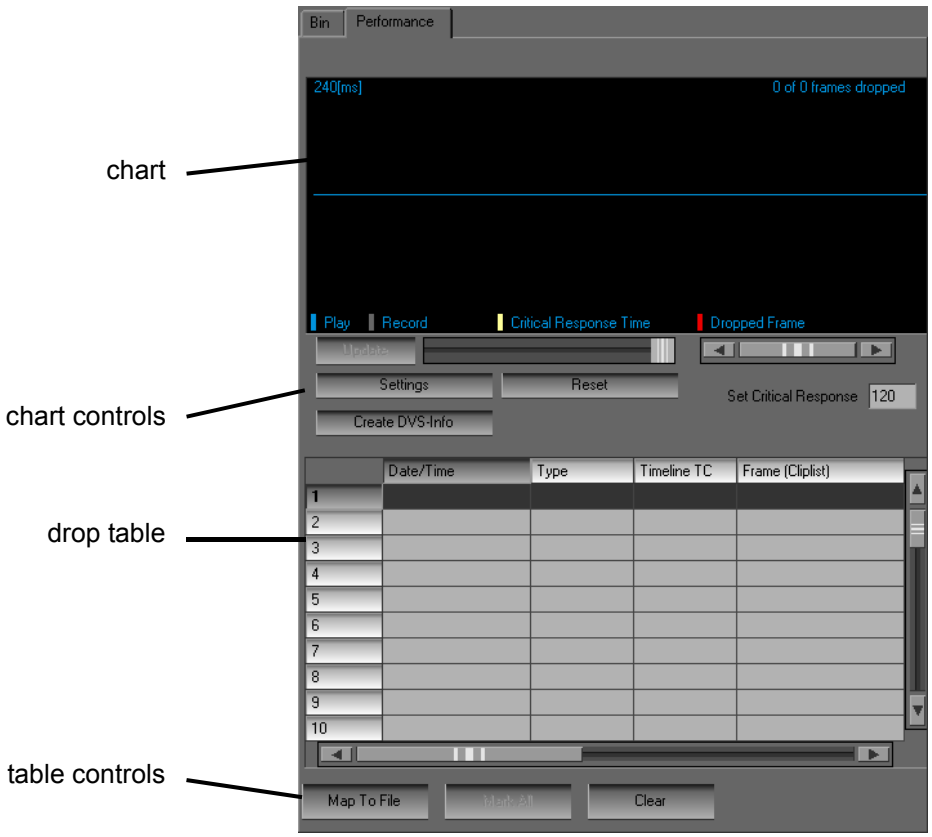


Figure 4-15: The performance monitor

The performance monitor will provide you with detailed information about occurring dropped frames (frames that CLIPSTER could not load or write in time for the performed real-time operation). Via the table below or while in its history mode you can also get information about the approximate location where the drop took place.

For this the performance monitor provides the following elements:

chart	The chart offers you a graphical interpretation of the measured access times. During a play-out or record operation each access to an image file will be shown as one bar in the chart. The chart is in detail explained in section “The Chart” on page 4-22.
chart controls	With the chart controls you can view the results of the chart in more detail, perform a general configuration of the performance monitor or create a DVS proprietary information file. They are explained in section “Chart Controls” on page 4-24.
drop table	As soon as drops occur during your real-time operation, an entry will appear in the drop table for each drop that could be detected. The entries will provide information, for example, about the date and time when the drop occurred or, if detected as well, about the file that was the cause for this drop. You can find a description of the drop table in section “The Drop Table” on page 4-27.
table controls	Via the table controls you can either save the results shown in the drop table to a file or set markers in the timeline of the CLIPSTER Edit Tool where the respective drop took place. They are in detail explained in section “The Table Controls” on page 4-28.

If the chart controls, the drop table as well as the table controls are dimmed, the performance monitor is turned off. Then, in the middle of the chart the message ’Performance Monitor disabled’ will be displayed (provided that enough of the tool area is visible). To measure access times with the performance monitor you have to enable the performance monitor via the Configuration Tool of CLIPSTER (see “CLIPSTER Configurations” user guide for more information).

CLIPSTER is able to process several different image files simultaneously (multi-threaded I/O mode). However, the chart of the performance monitor only provides a single-threaded view on the access times, meaning in multi-threaded I/O mode the access time to a single file (one bar) may be longer because several ones were read or written at the same time. Therefore, the chart will provide a correct view to the access times only if CLIPSTER is set to the single-threaded I/O mode which is a setting available in the CLIPSTER Configuration Tool (**Enable Async I/O**, see “CLIPSTER Configurations” user guide for more information). Because it is a system setting you have to close and start the CLIPSTER software to bring a change of it into effect.

When enabled, the performance monitor will write by default a drop report into the directory *log* of the CLIPSTER software's installation path (default: *C:\Program Files\DVS\Clipster*). There will be one report written per CLIPSTER session and it will provide you with information about all drops that occurred during this session. In the file you can find information about, for example, the date and time when the drop occurred or, if detected as well, about the file that was the cause for this drop.

Drops are reported by the real-time core of the CLIPSTER software. Only under ideal circumstances will it be able to provide information about the clip name, file name, source timecode, and/or path.

Individual frames missing in an image sequence (clip), i.e. image files that are not present on the hard disk array at all, will not cause the performance monitor to show a drop. However, you can check the consistency of your material added to the bin with the menu option ***Check Bin*** on the ***Bin*** menu (see section "Check Bin" on page 7-22 and section "Consistencies of Clips" on page 6-51).

You can get the approximate location of the file where the drop occurred by setting timeline markers with the help of the drop table or its controls (see section "The Drop Table" on page 4-27 and section "The Table Controls" on page 4-28).

This section explains the basic usage of and the items provided by the performance monitor.

4.3.1 The Chart

The chart of the performance monitor provides a graphical representation of the measured access times. During play-out or record operations every access to an image file will be shown as one bar in the chart.

CLIPSTER is able to process several different image files simultaneously (multi-threaded I/O mode). However, the chart of the performance monitor only provides a single-threaded view on the access times, meaning in multi-threaded I/O mode the access time to a single file (one bar) may be longer because several ones were read or written at the same time. Therefore, the chart will provide a correct view to the access times only if CLIPSTER is set to the single-threaded I/O mode which is a setting available in the CLIPSTER Configuration Tool (**Enable Async I/O**, see "CLIPSTER Configurations" user guide for more information). Because it is a system setting you have to close and start the CLIPSTER software to bring a change of it into effect.

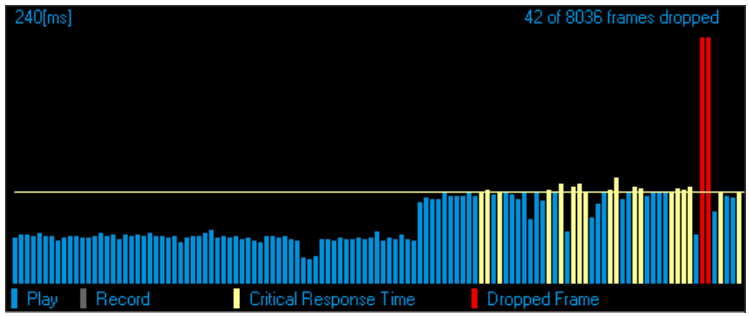


Figure 4-16: Chart of performance monitor

At the top left of the chart you can find the maximum access time that will be shown in the graph (scale of chart). It is determined by the set critical response time (usually `<critical response time> × 2`, see section “Chart Controls” on page 4-24).

At the top right of the chart you can find an indication about how many frames were processed total and how many drops occurred during this time.

The horizontal line in the middle of the chart indicates the set critical response time. When a file access takes more time than the set critical response time, its bar will reach over the horizontal line and it will be displayed and highlighted in the color of the critical response time (see legend at the bottom of the chart).

The highlighting of the access times that exceed the set critical response time can be enabled or disabled via the settings of the performance monitor (see section “Group ’Graphics’” on page 4-31).

Drops take more time than provided by the chart and their bars are therefore cut at the top. Thus they will be displayed in their respective color as the highest bars visible.

Missing frames on the video hard disk array are not registered by the performance monitor as drops.

If the message ’Performance Monitor disabled’ is displayed in the middle of the chart right below the horizontal line, the performance monitor is deactivated.

Figure 4-17: Message provided by the chart that the monitor is disabled

In such a case most of the controls and the drop table will be disabled as well. To use the performance monitor you have to enable it first.

This can be done with the Configuration Tool of CLIPSTER (see “CLIPSTER Configurations” user guide for more information).

4.3.2 Chart Controls

With the chart controls you can view the results in the chart in more detail. Additionally, you can perform a general configuration and set-up of the performance monitor here.

The chart controls provide the following items:

If the controls appear dimmed, the performance monitor will be disabled. To use it you have to enable it first. This can be done with the Configuration Tool of CLIPSTER (see “CLIPSTER Configurations” user guide for more information).

When viewing the history of the access times in the chart with the history slider (see below) you can return at any time to the current status of the performance monitor where the access times are continuously updated in real time with this button.

The slider to the right of the **UPDATE** button determines the viewing resolution of the chart. When pulled to the left, you will receive a higher resolution: The bars displayed in the chart will get thinner thus more bars will be displayed in the chart. When pulled to the right, the bars will get thicker and less bars will be visible.

When the history mode of the performance monitor is enabled (see section “Configuring the Performance Monitor” on page 4-29), you can change the viewing position of the chart with the slider to the right-hand side of the chart controls. You can go to the earliest available access times by pulling this slider to the left, and to the latest access times by pulling it to the right. Once this slider is used, you are in the history mode of the performance monitor. To leave the history mode and return to the currently updated access times you have to press the button **UPDATE** (see above).

With the button **SETTINGS** you can configure and set up the performance monitor in general. Once activated, the **'Settings'** window will be displayed where you can enable the history mode of the performance monitor or the automatic writing of result files.

The **'Settings'** window will be in detail explained in section section "Configuring the Performance Monitor" on page 4-29.

The button **RESET** enables you to reset the indication about how many frames were processed total and how many drops occurred during this time at the top right side of the chart back to zero. Afterwards you may start a new evaluation of the real-time performance of the CLIPSTER software which in turn may report new drops in the table.

This button does not reset the drop table of the performance monitor. For this you have to use the button **CLEAR** of the table controls. However, if you want both tasks to be performed in one step, there is a setting available in the Configuration Tool of CLIPSTER which will delete the entries in the drop table as well when the button **RESET** is selected (**Clear drop table on Reset**, see "CLIPSTER Configurations" user guide for more information).

With the entry field **Set Critical Response** you can set the horizontal line in the middle of the chart that determines the minimum access time where the performance monitor will mark an access as critical, i.e. as above the horizontal line (see section “The Chart” on page 4-22).

Additionally, the scale of the chart will be set by this value. The scale of the chart is usually the set critical response time times two (`<critical response time> x 2`). Once a value is set, the maximum access time shown in the chart will be altered as well (see section “The Chart” on page 4-22).

The notation is in milliseconds and the recommended value is `120`.

This value has no effect on any drops displayed by the performance monitor. Drops will be reported by the real-time core of CLIPSTER independent of the critical response time setting.

In case of problems with your CLIPSTER video system you may get asked by the DVS service department to create and generate CLIPSTER log files. Then you may use the button **CREATE DVS-INFO** to store the most important information in one file (in ASCII format). The file name of the log file will be `dvsinfo_<system time>.txt`, with the `<system time>` added in the format `yyyy-mm-dd_hh-mm-ss`. It will be stored in the subfolder *`dvsinfo`* in the *`log`* directory under the CLIPSTER software’s installation path (default: *`C:\Program Files\DVS\Clipster\log\dvsinfo`*).

4.3.3 The Drop Table

As soon as drops occur during your real-time operation, an entry will appear in the drop table for each drop that could be detected.

If the drop table is unavailable (dimmed), the performance monitor will be disabled. To use it you have to enable it first. This can be done with the Configuration Tool of CLIPSTER (see “CLIPSTER Configurations” user guide).

	Date/Time	Type	Timeline TC	Frame (Cliplist)	Source TC	File Name	Path
1	10/27/04 / 14:55:24	display	00:00:12:22	no frame	--:--:--:--		no data
2	10/27/04 / 14:55:24	display	00:00:12:23	no frame	--:--:--:--		no data
3	10/27/04 / 14:55:24	display	00:00:13:09	no frame	--:--:--:--		no data
4	10/27/04 / 14:55:25	display	00:00:13:18	no frame	--:--:--:--		no data
5	10/27/04 / 14:55:25	display	00:00:14:10	no frame	--:--:--:--		no data
6	10/27/04 / 14:55:26	display	00:00:14:19	no frame	--:--:--:--		no data
7							
8							
9							
10							
11							

Figure 4-18: Drop table of performance monitor

The entries provide information, for example, about the date and time when the drop occurred or, if detected as well, about the file that was the cause for this drop.

Drops are reported by the real-time core of the CLIPSTER software. Only under ideal circumstances will it be able to provide information about the clip name, file name, source timecode, and/or path.

You can retrieve further information about the location where the drop occurred by double-clicking an entry in the drop table. Then the timeline cursor will jump to the approximate location where the drop happened and a timeline marker will be placed at this particular position of the timeline.

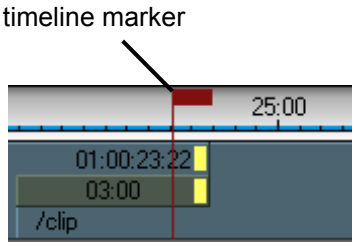


Figure 4-19: Timeline marker in timeline

Additional information about timeline markers can be found in section “Marking Positions in the Timeline” on page 6-44.

Furthermore, with its controls below the table you can, for example, save the results shown in the drop table to a file (see section “The Table Controls” on page 4-28).

4.3.4 The Table Controls

With the table controls below the drop table you can, for example, save the results written in the drop table to a file or set markers in the timeline of the CLIPSTER Edit Tool where the respective drop occurred.

Additional information about timeline markers can be found in section “Marking Positions in the Timeline” on page 6-44.

The following controls are available:

This button saves the entries in the drop table to a file. Enter in the opening dialog window a storage path and a file name for the drop table list to be saved. Then confirm your settings with the button **SAVE** and the table will be saved to the specified location.

Compared to the drop report saved as a standard by the performance monitor, this button only saves the entries currently available in the drop table (see section “The Performance Monitor” on page 4-20).

As soon as the real-time operation is finished, the button **MARK ALL** will be available and with it you can retrieve further information about the location where the drop occurred. It places timeline markers in the timeline of the CLIPSTER Edit Tool for each entry available in the drop table.

After you selecting this button, it will alter its appearance and during the creation of the markers it will show **ABORT**. Then you can abort the creation of the timeline markers, e.g. if there are too many of them, with a click of the mouse.

Once the placing of the markers is finished, this button shows the labeling **UNMARK ALL**. With it you can remove all timeline markers from the timeline in one step.

The **MARK ALL** button will not be available in the CLIPSTER I/O Tool because this module provides no timeline where markers can be set.

The **CLEAR** button deletes all entries displayed in the drop table. Afterwards you may start a new real-time operation which in turn may report new drops in the table. This button will be available as soon as drops are displayed in the drop table and the real-time operation is finished.

4.3.5 Configuring the Performance Monitor

With the button **SETTINGS** of the chart controls below the chart of the performance monitor you can perform a general configuration and setup of the monitor (see section “Chart Controls” on page 4-24). Once activated, the **’Settings’** window will be displayed where you can, for instance, enable the history mode of the performance monitor or the automatic writing of result files:

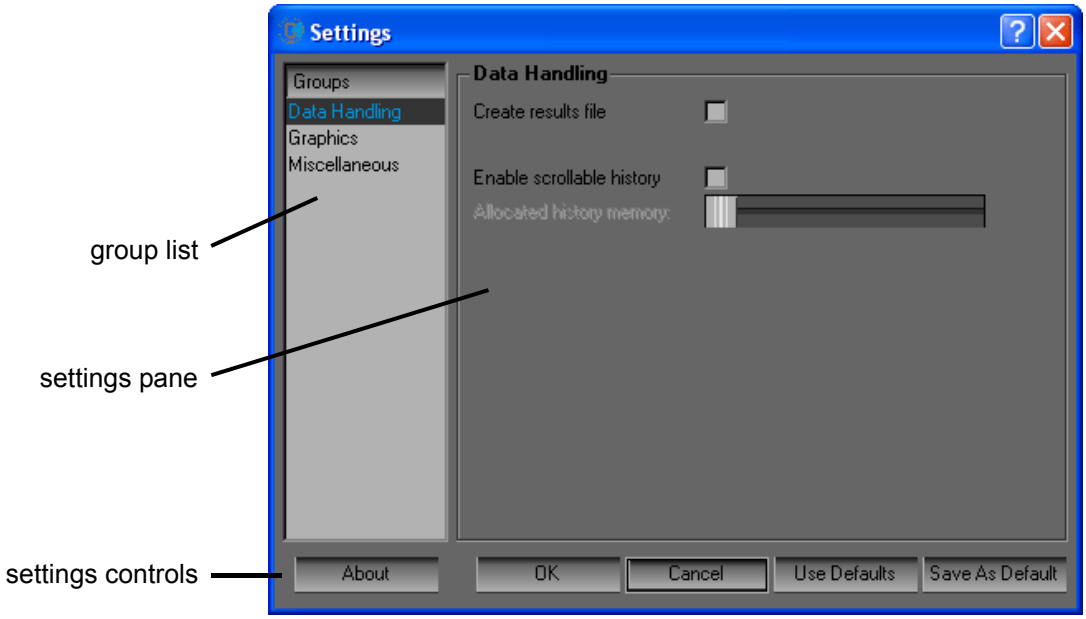


Figure 4-20: Performance monitor configuration window

The **’Settings’** window provides the following items:

group list — On the left side of the **’Settings’** window you can find a group list that provides access to the different settings of the performance monitor. Once an entry in the list is selected, the settings pane to the right will alter its appearance and the configuration items of the respective group are displayed. You can then change the settings under this group.

settings pane	The settings pane shows the settings of the selected group entry (group list to the left) that are available under this group. To change the settings alter the configurations in the settings pane and confirm your alterations with the **OK** button. This will close the **'Settings'** window and they will be in effect for this CLIPSTER session.
settings controls	The controls are used to confirm or cancel your alterations of the settings as well as to administer the default settings.

Group 'Data Handling'

The handling of the data that the performance monitor receives can be set with the group ***Data Handling***.

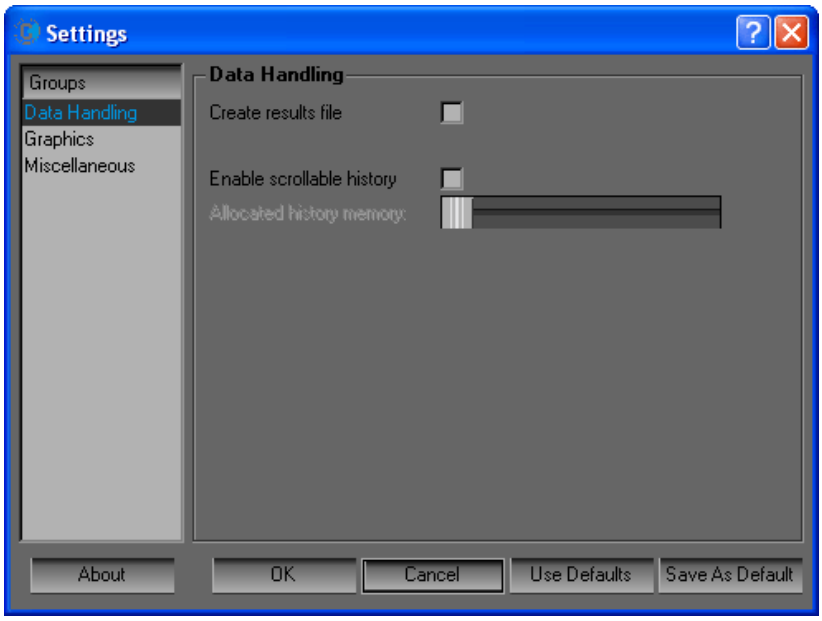


*Figure 4-21: The settings items of the group **Data Handling***

In detail this group provides the following settings items:

Create results file When this check box is activated, the performance monitor will create a results file where the names of all files are entered that exceed the set critical response time (see section “Chart Controls” on page 4-24 and section “Group ’Graphics’” on page 4-31). This setting does not affect the general log file written by the performance monitor where drops are reported (see section “The Performance Monitor” on page 4-20). It will be concerned with files that exceed the critical response time only. There will be one file for each CLIPSTER session and it will contain the following information:

```
<access time> <read (0)/write (1)>
<path>\<file name>
```

The entered file name will provide you with the approximate location where the cause for the exceeded response time can be found. The file will be written into the directory *result* of the CLIPSTER software’s installation path (default: *C:\Program Files\DVS\Clipster*).

When the check box **Create results file** is deactivated again in the same CLIPSTER session, the created file will be automatically deleted.

Enable scrollable history With this check box you activate the history mode of the performance monitor. Then you will be able to scroll back in the chart via the slider to the right-hand side of the chart controls (see section “Chart Controls” on page 4-24).

After enabling the check box the slider below it becomes available. Use this slider to determine the amount of data that should be available for a history view. Once the total allocated amount of memory for the history mode is full with data, the earliest stored values will be overwritten.

Group ’Graphics’

The settings items available under the group ***Graphics*** configure the appearance of the chart of the performance tool (see section “The Chart” on page 4-22).

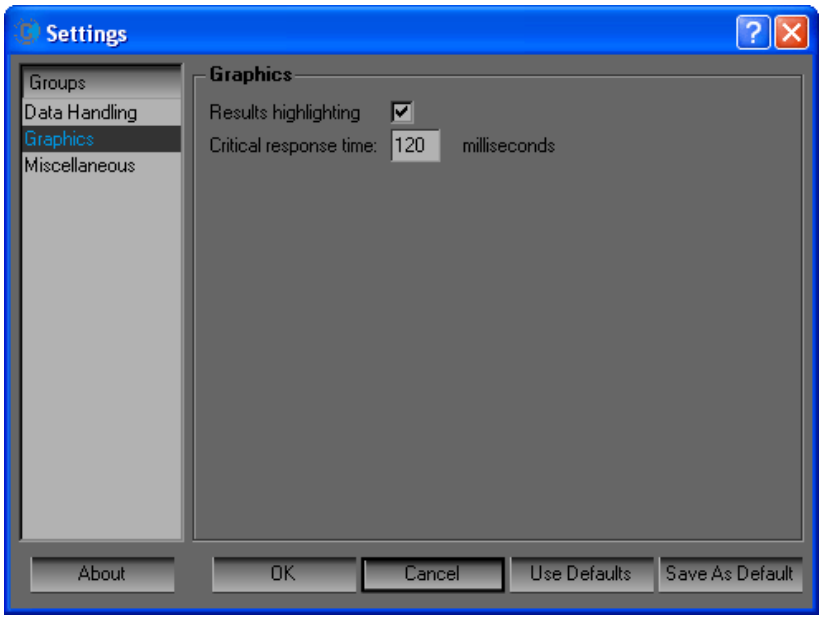


*Figure 4-22: The settings items of the group **Graphics***

In detail this group provides the following settings items:

Results highlighting

With the check box **Results highlighting** you can turn on or off the coloring and highlighting of the access times in the chart of the performance monitor that exceed the set critical response time (see section “The Chart” on page 4-22). If activated, the access times that take longer than the specified time will be highlighted. If deactivated, they will appear in the same color as the bars with normal access times. The highlighting of bars that indicate drops is not affected by this setting.

Critical response time

With the entry field **Critical response time** you can set the default value that will be used for the horizontal line in the middle of the chart. The horizontal line determines the minimum access time where the performance monitor will mark an access as critical, i.e. as above the horizontal line (see section “The Chart” on page 4-22).

Additionally, the scale of the chart will be set by this value. The scale of the chart is usually the set critical response time times two (`<critical response time> × 2`).

This value provides the same function as the value **Set Critical Response** of the chart controls (see section “Chart Controls” on page 4-24), only that it determines the default value which will be used after a starting of the CLIPSTER software when it was saved as a default value via the button **SAVE AS DEFAULT** (see section “Settings Controls” on page 4-34). Use the value **Set Critical Response** of the chart controls for a temporary alteration of the chart’s scale and the set critical response time.

The notation of the settings value is in milliseconds and the recommended value is `120`.

This value has no effect on any drops displayed by the performance monitor. Drops will be reported by the real-time core of CLIPSTER independent of the critical response setting.

Group ’Miscellaneous’

The group ***Miscellaneous*** provides settings items for a further and additional configuration of the performance monitor.

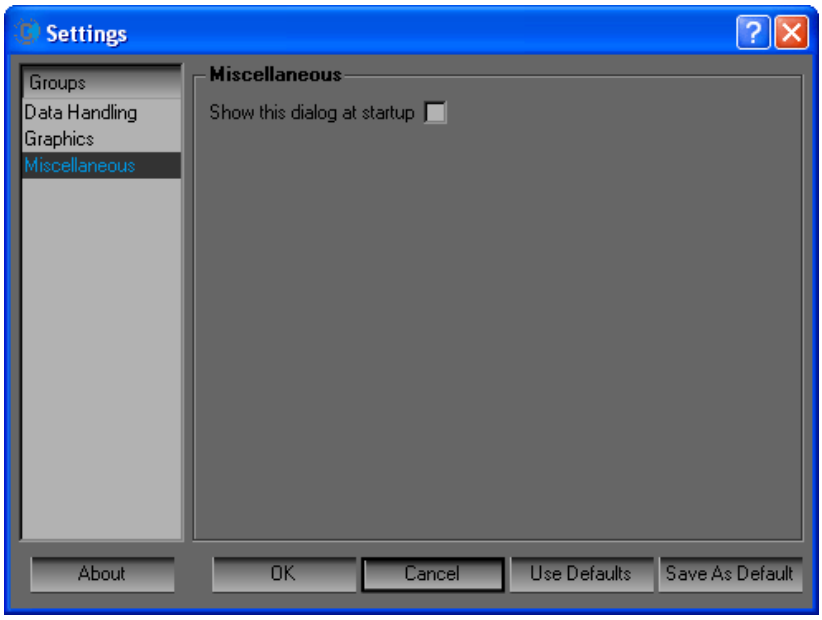


*Figure 4-23: The settings items of the group **Miscellaneous***

In detail this group provides the following settings items:

Show this dialog at startup When this check box is activated, the CLIPSTER software will display the settings window of the performance monitor after the software has started. Then you can perform adjustments to the settings right from the start.

Settings Controls

The control buttons at the bottom of the **'Settings'** window are used to confirm or cancel your alterations of the settings as well as to administer the default settings. The following controls are available:

The performance monitor was originally designed as a separate tool for the CLIPSTER software. This button will show you the software version of the monitor in a dialog window.

The **OK** button confirms your alterations to the settings and closes the **'Settings'** window. Your settings will be in effect for this CLIPSTER session only (as long as they were not stored as default values via the button **SAVE AS DEFAULT**).

The button **CANCEL** closes the window for the settings of the performance monitor without confirming your settings. The monitor will use the last confirmed settings.

With the **USE DEFAULTS** button you set all settings items available in the **'Settings'** window back to their default values.

The values currently set in the **'Settings'** window can be stored as their default values with the **SAVE AS DEFAULT** button. Then you can switch back to them easily after a previous changing of the settings with the button **USE DEFAULTS**. Furthermore, the default values will be available again automatically after a restart of the CLIPSTER software.

4.3.6 Using the Performance Monitor

The performance monitor of CLIPSTER monitors the hard disk accesses of the CLIPSTER software to the video data. With it you can verify, for example, the status of the hard disks of the storage array as well as of certain files on the array.

Individual frames missing in an image sequence (clip), i.e. image files that are not present on the hard disk array at all, will not cause the performance monitor to show a drop. However, you can check the consistency of your material added to the bin with the menu option ***Check Bin*** on the ***Bin*** menu (see section "Check Bin" on page 7-22 and section "Consistencies of Clips" on page 6-51).

This section will explain shortly how to use the performance monitor: First, it will be described how to prepare the monitor and the CLIPSTER software for the measuring of access times. After that follows a description of how to perform the actual test with a play-out operation.

Although the following describes how to use the performance monitor during a play-out of video data only, it can also be used during a record operation. However, then it will measure how long it takes to write an image file to the video hard disk array. A record can be performed with the I/O Tool of the CLIPSTER software (see "CLIPSTER I/O Tool" user guide).

Preparing the Software and the Performance Monitor

This section explains how to prepare the CLIPSTER software as well as the performance monitor for the measuring of access times during a play-out operation.

After starting the CLIPSTER software and thus the CLIPSTER Edit Tool the bin is by default activated in the tool area. Then perform the following:

- Add at least one clip to the bin of the CLIPSTER Edit Tool.

- Afterwards take this clip and add it to a video track of the CLIPSTER Edit Tool's timeline.

For our example described here you may also set transitions and/or apply effects to the clip(s) in the timeline as long as they are not a subject to a prerendering (see section "Prerendering of Timeline Elements" on page 6-38).

- After this select the tab **Performance** in the tool area of the CLIPSTER software.

The tool area switches to the performance tool of CLIPSTER.

- Next, adjust the tool area as described in section "Changing the Size of the Tool Area" on page 4-2 so that all items provided by the performance monitor are displayed as shown in the figure below:

If the controls of the performance monitor appear dimmed, the performance monitor is disabled. To use it you have to enable it first. This can be done with the Configuration Tool of CLIPSTER (see "CLIPSTER Configurations" user guide for more information).

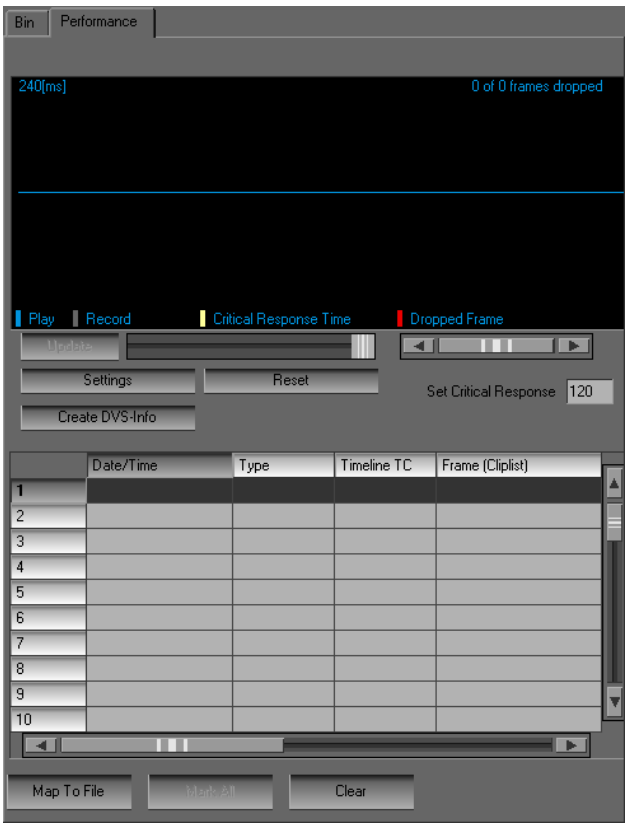


Figure 4-24: The performance monitor

After this the performance monitor is ready to assess the performance (access times).

Measuring the Performance

Once the performance monitor is prepared as described in section “Preparing the Software and the Performance Monitor” on page 4-35, you can begin the assessment of the access times:

- Start the play-out operation of the material added to the timeline with the play button available in the control area of the CLIPSTER Edit Tool (see section “Controls” on page 5-5).

This will start the play-out of the video material added to the timeline and as soon as the play-out starts, the performance monitor will start its monitoring of the performance as well:

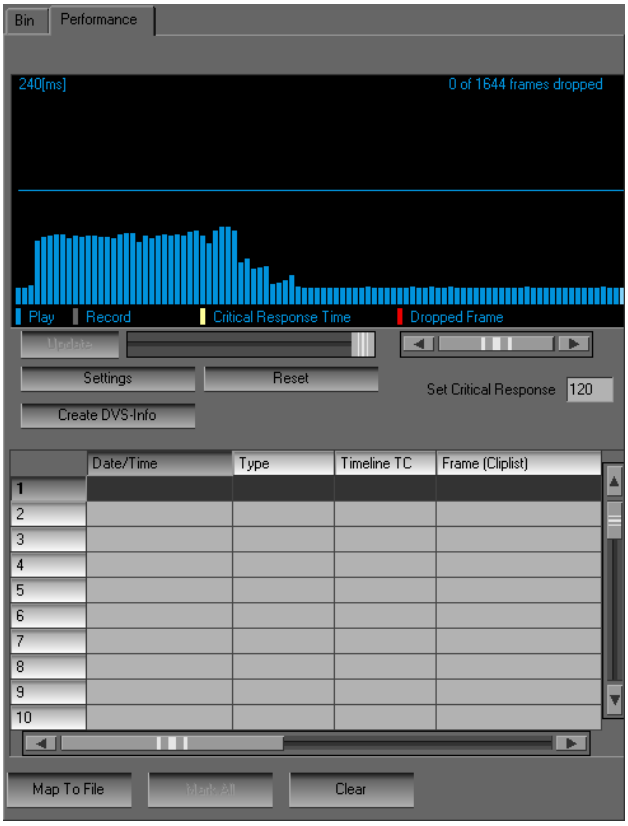


Figure 4-25: Healthy access times

Because CLIPSTER is capable of handling film material up to 2K in RGB 10 bit in real time, you usually will not have any problem: The

performance bars should stay well below the horizontal line (when set to 120 ms) and no drops should occur.

Of course, when lowering the critical response time, bars may be displayed above the horizontal line and thus be marked as critical. This poses no problem for CLIPSTER because the critical response time value is a user setting for convenience purposes only. Drops will be reported by the real-time core of CLIPSTER only regardless of the set value of the critical response setting.

CLIPSTER is able to process several different image files simultaneously (multi-threaded I/O mode). However, the chart of the performance monitor only provides a single-threaded view on the access times, meaning in multi-threaded I/O mode the access time to a single file (one bar) may be longer because several ones were read or written at the same time. Therefore, the chart will provide a correct view to the access times only if CLIPSTER is set to the single-threaded I/O mode which is a setting available in the CLIPSTER Configuration Tool (**Enable Async I/O**, see "CLIPSTER Configurations" user guide for more information). Because it is a system setting you have to close and start the CLIPSTER software to bring a change of it into effect.

If drops occur, they will be entered in the drop table of the performance monitor. Then please proceed as follows:

- Check the position of the drops on the video timeline by double-clicking individual entries or by selecting the **MARK ALL** button of the table controls.
- Afterwards perform the play-out operation and the checking of the drop positions again.
- Then confront your results with the following table:

Marker Location	Timeline Element	Probable Cause	Solution
At certain position(s)	On video clip(s)	Material at certain frames faulty	Check the material on the video hard disk array and replace the faulty files. After this the problem should be resolved.

Marker Location	Timeline Element	Probable Cause	Solution
At random	On transition(s)	Timeline material has a resolution that is too high for two simultaneous video streams	If the respective transitions are displayed in the timeline without a prerendering indication, reduce the value that indicates when a timeline element has to be prerendered (see CLIPSTER Configuration Tool in the "CLIPSTER Configurations" user guide). Then prerender the transitions (see section "Prerendering of Timeline Elements" on page 6-38). After this the problem should be resolved.
	Within a certain video clip	Either the material has a resolution that is too high, or The applied clip effect is not real-time capable	Either prerender the timeline element if it is a subject to a prerendering (see section "Prerendering of Timeline Elements" on page 6-38) or finalize the timeline (see section "Finalize…" on page 7-7). After this the problem should be resolved.
	Throughout the timeline	The configuration of the video system was altered so that it is no longer capable of real-time operations	Contact your local vendor.
		One or more hard disks of video hard disk array may be damaged	Replace the defective disk(s) as described in the "CLIPSTER" hardware guide.

If drops occur during a record operation of the CLIPSTER video system, one or more hard disks of the video hard disk array may be damaged. In this case replace the defective disk(s) as described in the "CLIPSTER" hardware guide.

After applying the recommended solution the problem should be resolved. However, if the drops persist, please contact your local vendor.

The Control Area

To the right of the tool area you can find the control area of the CLIPSTER Edit Tool. This area is used to pre- and review your current project and to set frame accurately the in- and outpoint of clips, either coming from the bin or already present in the timeline.

After starting the program the control area of the CLIPSTER Edit Tool is in its edit mode:

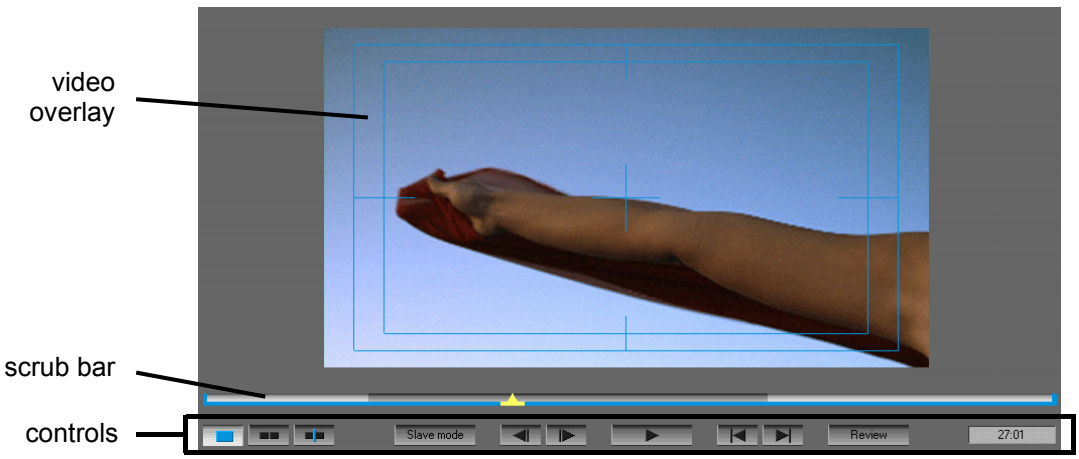


Figure 5-1: The control area

In this mode you can see at the top of the control area the video overlay which is used to view the video material. Below the video overlay a scrub bar of the timeline is available. At the bottom of the control area the controls to play out and move within your current project are located. Here you can also find the buttons to switch between the different overlay modes of the CLIPSTER Edit Tool as well as other important buttons. All items of the control area are described in detail in the following sections.

5.1 The Video Overlay

With the video overlay you can view the material present in the timeline. All clips and added operators to the timeline – as long as they do not require prerendering – can be viewed in real time. While working, the video overlay will always adjust to your moves on the timeline. This provides for a total control of your work and you can immediately monitor your progress.

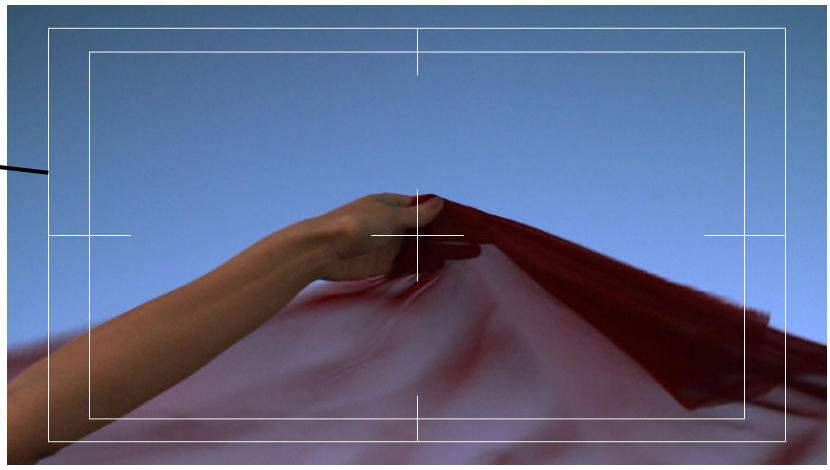


Figure 5-2: The video overlay

The video overlay will adapt its layout (aspect ratio) to the currently set video output raster of the timeline. Due to the fact that the output raster may have an effect on the video material of the timeline, you can use the video overlay to see its output effect immediately. For example, clips of different sizes in the video track(s) of the timeline may get cropped, stretched or compressed, or scaled according to your settings for the respective clips and your output settings. All these effects can be viewed instantaneously via the video overlay. Further information about setting the video output raster can be found in section “Configuring the Video and Audio Output” on page 6-10.

The video overlay provides action safety and title safety areas that can be turned off or adjusted to your personal needs. This can be done with the Configuration Tool of CLIPSTER. For further information please refer to the “CLIPSTER Configurations” user guide.

You can adjust the size of the video overlay with the edge of the control area at its very bottom. Simply enlarge or reduce the area by dragging its edge (see section “Changing the Size of the Tool Area” on page 4-2).

5.2 The Scrub Bar of the Control Area

Below the video overlay a scrub bar of the timeline is available.

Figure 5-3: Timeline scrub bar

In contrast to the timeline of the timeline area where you can zoom in and out (see chapter “The Timeline” on page 6-1), the scrub bar of the control area always shows the complete timeline of the loaded project. You can use the scrub bar for overview purposes or to move within your project.

The scrub bar of the control area provides several features, for example, different colors (shades of grey) which indicate the state of the timeline. The following features are provided by the scrub bar:

Items of Scrub Bar	Description
in dark grey	Parts of the scrub bar in a dark grey show the parts of the timeline that were deselected via the timeline’s in- and outpoint. Further information about the in- and outpoint of the timeline can be found in section “Setting In- and Outpoint for the Timeline” on page 6-23.
in normal grey	Parts in normal grey show the part of the timeline that is currently visible in the timeline area. You can change the size of this part by zooming in or out of the timeline. Furthermore, by moving within the timeline you can change its position (see also section “Moving within the Timeline” on page 6-20). This part can be selected directly with the mouse and moved along the scrub bar to switch the view of the video and audio tracks in the timeline area to another part of the timeline.
in light grey	Parts of the scrub bar displayed in a light grey indicate the parts of timeline selected via the timeline’s in- and outpoint that are not visible at the moment.

Items of Scrub Bar	Description
	The blue line with its start and end marker indicates the part of the timeline selected via the timeline's in- and outpoint. For information on how to set the in- and outpoint of the timeline see section "Setting In- and Outpoint for the Timeline" on page 6-23.
	With the scrub bar cursor you can move within your project. Simply select the cursor with the mouse and move it along the scrub bar to the desired position. You can also click on a position outside the visible timeline area on the scrub bar directly to move the cursor there immediately.

5.3 Controls

At the bottom of the control area the controls to play out and move within your current project are located. In addition to other important buttons you can also find buttons to switch between the different video overlay modes of the CLIPSTER Edit Tool here: the edit mode, the master mode and the trim mode.

With this button you can switch to the edit mode. The edit mode of the CLIPSTER Edit Tool is the standard operating mode of the program. By default this mode is activated after the starting of the program. In the edit mode only one video overlay is visible where you can see and check your changes applied to the clips in the timeline.

This button activates the master mode of the CLIPSTER Edit Tool where you can select the in- and outpoint of a clip coming from the bin before adding it to the timeline. Once everything is set, you can drag the clip from the control area to a video track of the timeline. The master mode is described in more detail in section “The Master Mode” on page 5-9.

You can switch to the trim mode of the CLIPSTER Edit Tool with this button. After its activation the CLIPSTER Edit Tool will automatically jump to the nearest cutting point and the timeline cursor will be positioned there. Use the trim mode of the CLIPSTER Edit Tool to change in- and outpoint of adjacent clips to a cutting point, for example, if there are not enough head and tail available for a transition. The trim mode is described in more detail in section “The Trim Mode” on page 5-16.

The **SLAVE MODE** button activates the slave mode of the CLIPSTER Edit Tool. With the slave mode the CLIPSTER video workstation can be controlled via RS-422 from another system, e.g. a VTR or a digital disk recorder such as the Pronto2K by DVS. When the slave mode is activated, a message box will be displayed by CLIPSTER and the user interface will be barred from entries.

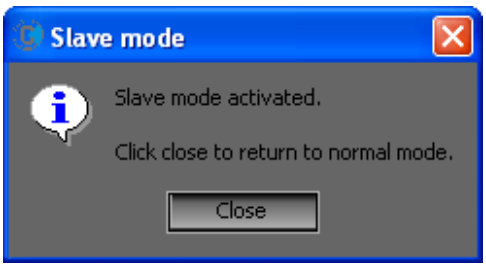


Figure 5-4: Activated slave mode

To clear the workstation from the slave mode again, press the button **CLOSE** of the message window **'Slave mode'**.

With these buttons you can step one frame for- or backwards in your project. The timeline cursor will move accordingly. Alternatively, you may use the keyboard shortcuts [Left Arrow]/[Right Arrow] or [3]/[4].

With this button you can start a play-out of the timeline. After activation the button changes its appearance to its active state ( ). To stop the play-out you have to click this button again. Alternatively, you may use the keyboard shortcuts [Space] or [5]/[K] to start or stop a play-out.

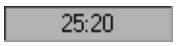
To view your project on an additionally connected monitor, you have to configure the output format of the timeline accordingly. The setting of the output format (video raster) of the project can be configured with the button **SETTINGS...** above the timeline (see section "How to Configure the Video Output" on page 6-11).

If you activate a play action of the clip from the bin in the master mode (see section "The Master Mode" on page 5-9), a play-out of the timeline will be terminated.

You can jump to cutting/edit points and timeline markers on the timeline with these buttons. The first button jumps to the cutting point/timeline marker that is previously located on the timeline while the second button jumps to the next one. Alternatively, you may use the keyboard shortcuts [A] (jump backwards) and [S] (jump forwards).

This button plays around the current position of the timeline cursor (± several sec.) in a loop. To deactivate the loop review press the button **REVIEW** again.

The duration of the review can be configured freely with the with the Configuration Tool of CLIPSTER (see "CLIPSTER Configurations" user guide for more information).



This field either shows the timecode or the frame number of the current position of the timeline cursor. If you want to move to a certain position on the timeline, you can enter the position here. When this field is set to timecode viewing, enter the appropriate timecode, when in frame number viewing, enter the respective frame number. After that press [Enter] and the timeline cursor will move to the entered position.

To switch from the timecode to the frame viewing for this field, you have to use the Configuration Tool of CLIPSTER (see “CLIPSTER Configurations” user guide for more information).

The timecode format is `hh:mm:ss:ff` (hours, minutes, seconds, and frame number). When entering timecode, you may omit digits: if you enter less information, the entered timecode will be interpreted from right to left (the last number is the frame, the next the seconds, etc.). Every digit omitted between the colons is assumed to be a leading zero.

You may also omit the colons. However, then you should observe that no digits are left out: With omitted colons the entered timecode will be interpreted from right to left (the last two numbers indicate the frame, the next two the seconds, etc.).

Example:	`1:9`	jumps to 1 sec. frame 9
	`109`	jumps to 1 sec. frame 9
	`247`	jumps to 2 sec. frame 47 (`00:00:03:23` when raster is in 24p)

Additionally, to move to a certain position on the timeline you can either add or subtract the timecode or the frame amount from the given position. For this simply add the timecode or frame amount with a minus or plus sign (–/+) to the given position in the timecode/frame number field. After that press [Enter] to confirm your entry and move to the entered position.

Example:	`1:23+2:05`	jumps to 4 sec. frame 4
	`4:04-53`	jumps to 1 sec. frame 23

5.4 The Master Mode

If you drag either a video or audio clip from the bin to the control area of the CLIPSTER Edit Tool, the software changes to the master mode.

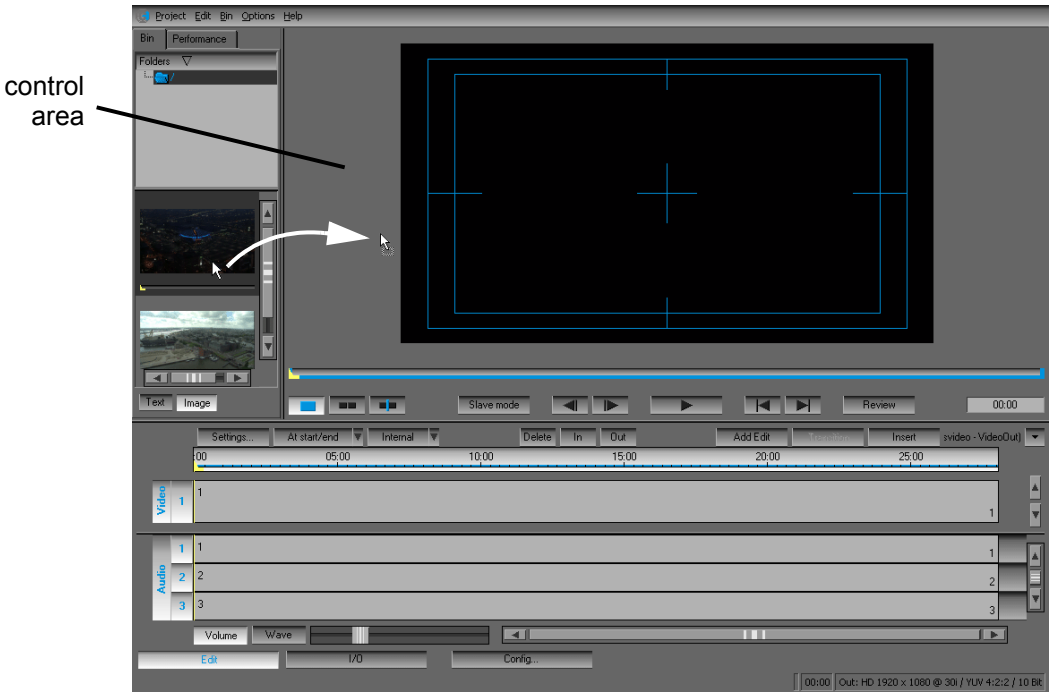


Figure 5-5: Drag and drop of clip to control area

The clip in the bin is neither removed nor deleted when it is dragged to the control area. It will remain there for future use so that you can add the clip (or other parts of the clip) to the timeline again.

You can also switch to the master mode manually by pressing the respective button of the controls (see section “Controls” on page 5-5). In the master mode there are two video overlays visible in the control area of the CLIPSTER Edit Tool:

Figure 5-6: The master mode

The left part of the control area shows the clip coming from the bin (in the following called 'bin clip'). As long as it is a video clip its contents will be displayed in the video overlay to the left. The right part of the control area displays your current video overlay as it would be in the edit mode.

The entry fields of the bin clip either show the timecode or the frame number. To switch from the timecode to the frame viewing for these fields, you have to use the Configuration Tool of CLIPSTER (see "CLIPSTER Configurations" user guide for more information). Furthermore, these entry fields are also connected to the selected display type of the CLIPSTER Edit Tool's timeline. For example, if the source timecode is selected as the display type and such a timecode is provided by the clip, the bin clip's entry fields will provide the source timecode instead of a relative timeline timecode (see section "Changing the Display Type" on page 6-9).

If your bin clip was already set to a preliminary inpoint in the bin, you will see the selected inpoint in this mode. How to set an inpoint for a clip in the bin can be read in section "Preparing Clips for Editing Purposes" on page 4-18.

In the master mode you can select frame accurately an in- and outpoint for your bin clip. Once the in- and outpoint is set, you can drag the bin clip from the control area to the respective tracks of the time-

line (as described in section “Taking a Clip from the Control Area” on page 6-4).

Audio clips can be used in the master mode as well.

While in the master mode you can use the controls at the bottom of the control area as usual. They control the video overlay on the right side. For a description of these controls see section “Controls” on page 5-5.

Furthermore, although the edit mode is the most appropriate mode to perform editing tasks, you can also perform your work in this mode.

5.4.1 Controlling the Clip from the Bin

Below the scrub bar of the clip from the bin (bin clip) you can find the controls to control the bin clip. In detail they perform the following:

With these buttons you can step one frame for- or backwards in the scrub bar of the bin clip. The scrub bar cursor will move accordingly.

With this button you can play out the bin clip in real time. When a play-out is initiated, the contents of the bin clip between the set in- and out-point will be displayed in its overlay on the left as well as at the video output of CLIPSTER. If the bin clip is an audio clip, the contents of the audio clip will be played out at channel 1 and 2 of the digital audio outputs of CLIPSTER. If these are routed to the analog outputs, you can hear the clip at these outputs as well (see section “Configuring the Video and Audio Output” on page 6-10). After activation the button changes its appearance to its active state ( ) and you have to press it again to stop the play-out.

To view the bin clip (video) on an additionally connected monitor, you have to configure the output format of the timeline accordingly. The setting of the output format (video raster) of the project can be configured with the button **SETTINGS...** above the timeline’s scale (see section “How to Configure the Video Output” on page 6-11).

With the activation of a play of the bin clip, a play of the timeline will be terminated.

These buttons jump to the beginning or end of the scrub bar of the clip coming from the bin. The first button jumps to the beginning of the timeline while the second button jumps to its end.

With the **LOCK** button you can synchronize the timeline cursor of the timeline with the scrub bar cursor of the bin clip. Then the timeline cursor will adjust to your moves of the scrub bar cursor, for example, if you scrub the bin clip's scrub bar or move via the buttons to step one frame for- or backwards. The way the synchronization is performed can be set with the Configuration Tool of CLIPSTER (see "CLIPSTER Configurations" user guide for more information).

This way you can conform an offline composed project frame accurately. Once the timeline cursor is correctly positioned, use the snapping mode of CLIPSTER to add the required clip to the timeline at its supposed position (see section "Adding Clips to the Timeline" on page 6-2).

5.4.2 Setting In- and Outpoint for the Clip from the Bin

When the video or audio clip from the bin (bin clip) was dragged to the control area and the master mode is activated, you can set the in- and outpoint of the clip frame accurately. For this you have to use the scrub bar and the position items below its overlay window:

When dragging an audio clip to the control area, the video overlay will display a black frame only. However, with audio clips the trim and play-out possibilities are the same as with video clips. The contents of the audio clip will be played out at channel 1 and 2 of the digital audio outputs of CLIPSTER. If these are routed to the analog outputs, you can hear the clip at these outputs as well (see section "Configuring the Video and Audio Output" on page 6-10).

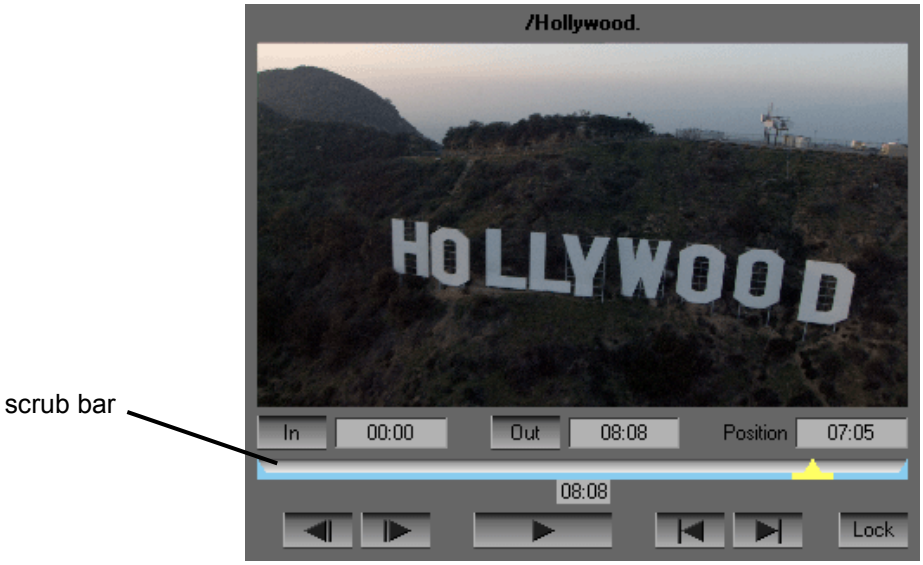
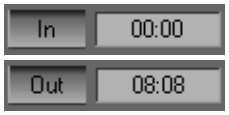
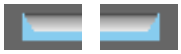


Figure 5-7: Bin clip in master mode

The scrub bar provides a timeline of the clip coming from the bin. You can use it and the position items to adjust the in- and outpoint of the bin clip. In detail you can find the following elements:

The entry fields of the bin clip (**In**, **Out** and **Position**) either show the timecode or the frame number. To switch from the timecode to the frame viewing for these fields, you have to use the Configuration Tool of CLIPSTER (see “CLIPSTER Configurations” user guide for more information). Furthermore, these entry fields are also connected to the selected display type of the CLIPSTER Edit Tool’s timeline. For example, if the source timecode is selected as the display type and such a timecode is provided by the clip, the bin clip’s entry fields will provide the source timecode instead of a relative timeline timecode (see section “Changing the Display Type” on page 6-9).

Items	Description
	For a frame accurate positioning you may use the in- and outpoint entry fields. Simply type in in the entry field to the right of the respective button the position of the in-/outpoint that the clip should provide in the timeline of the CLIPSTER Edit Tool. Then press [Enter] to take on the selected position. The in- or outpoint handler will be set accordingly.

Items	Description
	To position the in- and outpoint handlers frame accurately you may also use the buttons **IN** and **OUT**. They will set the respective handler to the current position of the scrub bar cursor. Position the scrub bar cursor at the exact location where the in-/outpoint should be set. Then press the respective button and the in- or outpoint handler will be set accordingly.
	The **Position** field displays the current position of the scrub bar cursor on the scrub bar of the bin clip (its timeline). To move the cursor you may enter a position and press [Enter].
	With the scrub bar cursor you can move and view the contents of the bin clip. Simply select it and move it along the scrub bar. Additionally, you can control it via the controls, e.g. the play button, or the **Position** field above the scrub bar. Furthermore, with a mouse click anywhere on the grey scrub bar you can position the scrub bar cursor there instantly.
	The in- and outpoint handlers together with the blue line show you the selected part of the clip. To position them you can select and move the in- and outpoint handlers with the mouse. They can also be set via the **In** and **Out** position items above the scrub bar. Once the final length of the clip to be inserted is set, you can select the blue line below the scrub bar with the mouse directly and move it along the scrub bar to position it.
	The counter displays either the length of the clip in timecode format or the amount of frames that the bin clip will provide when dragged to the timeline. This is calculated from the set in- and outpoint handlers.
Scrub bar in dark grey	Parts of the scrub bar in a dark grey show the parts of the clip that were deselected via the set in- and outpoint. If you click on such a part, the scrub bar cursor will be positioned there instantly.

Items	Description
Scrub bar in light grey	Parts of the scrub bar displayed in a light grey indicate the part of the clip that is selected via the set in- and outpoint. If you click on such a part, the scrub bar cursor will be positioned there instantly.

To set the in- and output perform the following:

If your bin clip was already set to a preliminary inpoint, you will see the selected inpoint in this mode. Then you can adjust it more accurately.

- If necessary, pull the scrub bar cursor out of the way to grab the in- or outpoint handler.
- With the mouse select the in- or outpoint handler and move each to their desired positions.

For a frame accurate positioning of the in- and outpoint handlers you may also perform one of the following: Either enter the position of the in- and outpoint handlers in the **In** and **Out** entry fields above the scrub bar (then press [Enter]), or move the scrub bar cursor to the desired position and press the **IN** or **OUT** button.

The still selected part of the scrub bar will be shown in a light grey while the deselected part is displayed in a dark grey. Additionally, the counter will decrease:

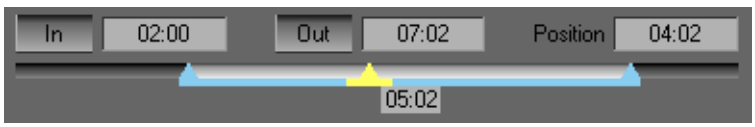


Figure 5-8: Set in- and outpoint of the bin clip

You can also work the other way around: you can first determine and set the length of the clip to be inserted and then move the blue line along the scrub bar with the mouse to position it.

When everything is set as desired, select the bin clip in its video overlay and drag and drop it to the respective video or audio track of the timeline (see section “Taking a Clip from the Control Area” on page 6-4 for further information).

To switch the control area back to its edit mode use the appropriate button of the control area ( ).

5.5 The Trim Mode

With the trim mode of the CLIPSTER Edit Tool you can change the in- and outpoint of adjacent clips to a cutting point, for example, if there are not enough head and tail available for a transition.

You can also change in- and outpoints of clips with their respective representations in the timeline directly (see section “Changing the In- and Outpoints of Clips” on page 6-39).

As soon as two clips are present in the video track(s) of the timeline, the trim mode can be activated easily via its button from the controls (see section “Controls” on page 5-5). Then the control area changes its appearance and you will see something like the following:

Figure 5-9: The trim mode

When the trim mode is activated, the CLIPSTER Edit Tool will automatically jump to the nearest cutting point of the timeline and the timeline cursor will be positioned there accordingly. If the Edit Tool positions the timeline cursor on another cutting point than the desired one, move it to the correct one with the respective controls (or key [A]/[S]).

In this mode you cannot move inside the project as usual. The timecode cursor is restricted to the location of cutting points only.

The control area in the trim mode shows then the two clips adjacent to a cutting point. The left overlay shows the outpoint and the last

frame of the clip left to the cut while the right one displays the inpoint and first frame of the clip to the right.

If in- and outpoints were already defined for your clips, you will see the respective in- and outpoints in this mode. The selected parts of the scrub bars will be shown in light grey while the deselected parts are shown in dark grey.

On top of each overlay you can find further information about the clip. Beside the name of each clip as it is present in the bin, you can get information about the clips' in- and outpoint on the timeline:

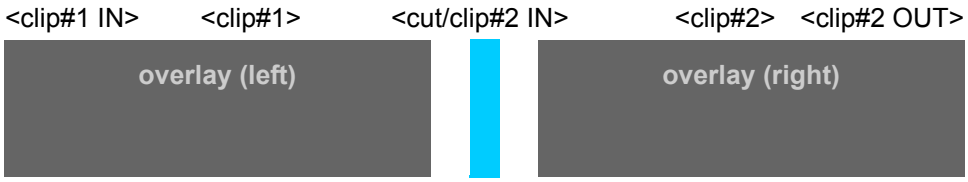


Figure 5-10: In- and outpoint information of trim mode

The left number (either in timecode or in frame notation) shows you the inpoint of the clip on the timeline that precedes the cutting point. In the middle you can find the position of the cut on the timeline which is also the inpoint of the succeeding clip, whereas to the right you can see the outpoint of the succeeding clip.

5.5.1 The Trim Controls

In addition to the in- and outpoint information and the overlays where you can see the start and end frame of the clips, the control area in the trim mode provides the following elements to control a trimming frame accurately:

The timecode or frame notation of the entry fields or information provided by the control area in the trim mode can be changed from the timecode to the frame viewing and vice versa with the Configuration Tool of the CLIPSTER software (see "CLIPSTER Configurations" user guide for more information).

Items	Description
Blue bar	The blue bar between the two overlays represents the cut between the two clips. It can be selected with the mouse and while moving the mouse cursor to the left or right, you can trim the out- and inpoint of the clips adjacent to the cutting point simultaneously. Thereby you will extend the length of one clip while shortening the length of the other at the same time. With this kind of trimming the total timeline length is maintained.
	The in- and outpoint handlers can be selected and moved with the mouse to set the in- or outpoint of the clips.
	The counters below the timeline of each clip display the length of the clips in timecode format or the amount of frames that the clips provide, calculated from the set in- and outpoint handlers.
	These are the other in- and outpoint markers of the clips. They cannot be moved. To adjust them you have to jump to their respective cutting points.
	The **OUT** and **IN** buttons are toggle buttons. In their active state (Out / In) the respective in- or outpoint is selected for a trimming. The **OUT** button selects the outpoint of the clip to the left side of the cutting point. The **IN** button selects the inpoint of the clip to its right. Then the respective in- or outpoint can be changed with the controls below the two fields that display the changes applied to the trimming points. The **OUT** and **IN** button will change their state automatically when one of the trimming items above is selected directly for a trimming, i.e. when you select either the blue bar or one of the in- or outpoint handlers.
	With the two fields below the **OUT** and **IN** button you can monitor the changing of the out- or inpoint and thus adjust them frame accurately. The left field shows the changes to the outpoint of the clip to the left of the cut, while the right field displays the changes to the inpoint of the clip to the right.

Items	Description
	With these buttons you can trim the out- or inpoint selected via the buttons **OUT** and **IN** one frame for- or backwards. The respective handler will move accordingly. If both buttons are activated, the out- and inpoint will be both adjusted simultaneously.
	These buttons allow you to trim the out- or inpoint selected via the buttons **OUT** and **IN** ten frames for- or backwards. The respective handler will move accordingly. If both buttons are activated, the out- and inpoint will be both adjusted simultaneously.

5.5.2 Setting In- and Outpoint of Clips

If clips are already present in the timeline of the CLIPSTER Edit Tool, you can change their in- and outpoint with the trim mode. To do this frame accurately you have various controls at hand either to monitor the trimming or to adjust it. With the trim mode activated and the timeline cursor positioned at the right cutting point between the clips that you would want to change perform the following:

You can also change in- and outpoints of clips with their respective representations in the timeline directly (see section “Changing the In- and Outpoints of Clips” on page 6-39).

- Select the in- or outpoint handlers in the timelines of the clips with the mouse and move them to the desired position for each clip.

You cannot change in- and outpoints beyond the limits of the original material on the video hard disks.

If the clips provide a long duration, you can adjust the handlers only roughly. Then to set them more accurately you may use either the keyboard controls of the CLIPSTER software (see section “Keyboard Shortcuts” on page A-3) or the controls below the two timelines as described in the following.

- If not already set accordingly select the appropriate out- or inpoint that you would want to adjust via the **OUT** and **IN** button of the trim controls. If you want to adjust the outpoint of the clip to the left of the cutting point, the **OUT** button has to be activated, if you want to set the inpoint of the clip to its right, the **IN** button has to be selected. If both buttons are activated, the out- and inpoint will be both adjusted simultaneously.
- Next use the controls below the two fields that show the changes applied to the out- and/or inpoint handlers to position them frame accurately.

Figure 5-11: Trim controls

The respective handler(s) will move accordingly. As well the counter(s) will in- or decrease for the selected clip(s). Your alterations are effective immediately in the timeline and you can now, for example, define a transition between the clips or perform a play-out.

To switch the control area back to its edit mode use the appropriate button of the control area ( ).

The Timeline

For the editing process CLIPSTER uses a timeline with video and audio tracks where you can add the clips in the desired sequence as they should be played out in the end. You can then, for instance, define wipes, dissolves or cuts for the material.

This chapter explains how to work with the timeline in detail. It will be discussed how to add clips to the timeline and how to work with them afterwards. The latter will include among others descriptions on how to move in the timeline, how to perform cuts and how to set transitions. Additionally, because the timeline area is the most important part for your work with the CLIPSTER Edit Tool, it can be configured freely which will also be addressed here.

6.1 Adding Clips to the Timeline

To begin an editing work you have to drag the clips to the video and/or audio tracks of the timeline first. You can add clips of different resolutions to the timeline because CLIPSTER works resolution independent and is capable of handling material up to 2K in 10 bit.

There are two ways to add a clip to the timeline:

1. You can take a clip directly from the contents area of the bin, or
2. you can configure its in- and outpoint beforehand via the master mode of the CLIPSTER Edit Tool and then drag it from the control area to the timeline.

Both ways will be described in this section.

Before adding video clips to the timeline see to it that the field mode of the clip in the bin is set correctly. By default CLIPSTER sets the video format of each clip added to the bin via a drag-and-drop procedure or the ***Add Clip*** menu option to the progressive field mode. If your material is in an interlaced video format, you have to call up the clip properties of the clip and change the field mode respectively.

During the adding of clips to the timeline, the clip will be visible in the video or audio track of the timeline and it will react to certain elements of the timeline (snapping mode of the CLIPSTER Edit Tool) to allow for an automated positioning. Further information about the snapping mode can be found in section “Moving Clips within the Timeline” on page 6-29.

When adding or moving clips in the timeline, you have to heed the current insert/overwrite mode of the timeline. More information on this can be found in section “The Insert/Overwrite Mode of the Timeline” on page 6-26.

6.1.1 Taking a Clip Directly from the Bin

You can take a clip directly from the contents area of the bin and add it to the tracks of the timeline. For this perform the following:

- Select one clip (or more with the [Ctrl] key pressed) in the contents area of the bin and drag and drop it with the mouse into a video or audio track.

Video clips can only be dragged to the video track(s) of the CLIPSTER Edit Tool and audio clips only to the audio tracks.

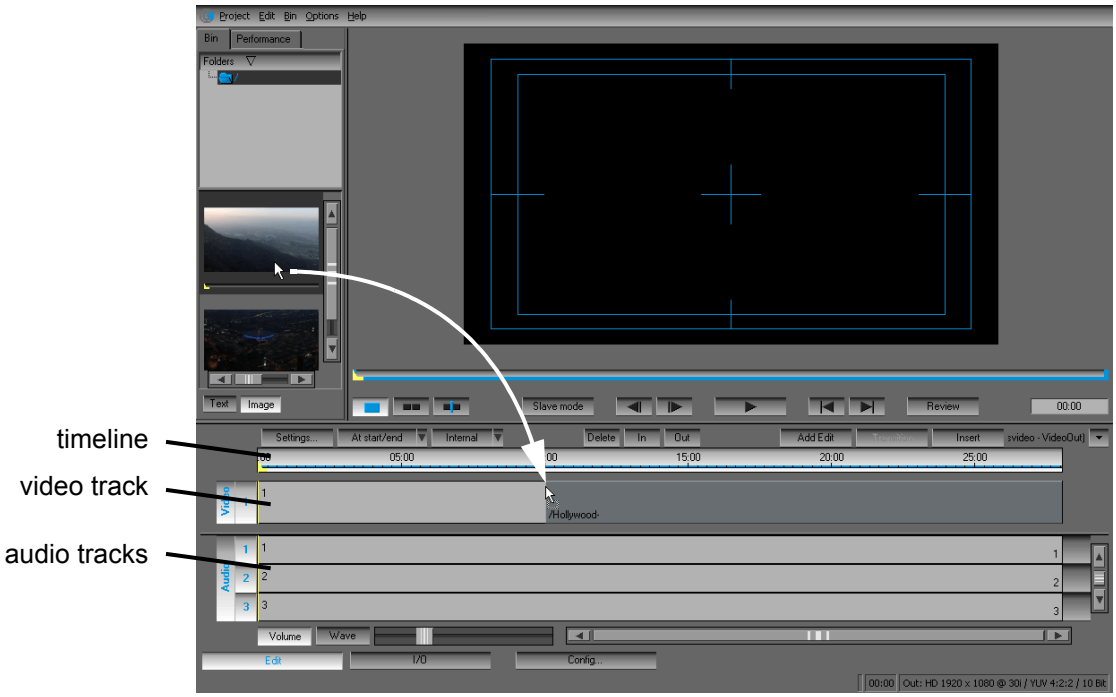


Figure 6-1: Drag and drop of clip to timeline

Once the mouse button is released, a representation of the clip is added to the timeline.

When using clips from the bin, they are neither removed nor deleted there. They will remain in the bin for future use so that you can add the clip (or other parts of the clip) to the timeline again.

Usually, the clip's position (its inpoint) within the timeline is set during the drag-and-drop procedure by the mouse pointer where the clip is released. Only when the timeline is empty and the insert mode is activated for the CLIPSTER Edit Tool, the clip will be aligned automatically at the starting point of the timeline. Its outpoint is defined by the length of the clip. You can change these attributes easily after the clip was added to the timeline as described in section "Changing the In- and Outpoints of Clips" on page 6-39.

If more than one clip is selected for the drag-and-drop procedure, the CLIPSTER Edit Tool will either align the clips horizontally in one track of the timeline or put each clip into another track directly below the selected one. This drag-and-drop behavior can be configured with the CLIPSTER Configuration Tool (see "CLIPSTER Configurations" user guide for more information).

If you drag an audio clip from the bin to the timeline that contains more than one mono or stereo channel (multiple channels), the additional channels will be added to the other audio tracks below the selected one.

6.1.2 Taking a Clip from the Control Area

When a clip from the bin is dragged to the control area, the master mode is activated where you can set the in- and outpoint of the clip frame accurately.

Further information about the master mode and how to set in- and outpoint for a clip there can be found in section “The Master Mode” on page 5-9.

When the in- and outpoint are set as desired, perform the following:

- Select the bin clip in its video overlay and drag and drop it to a video track of the timeline.

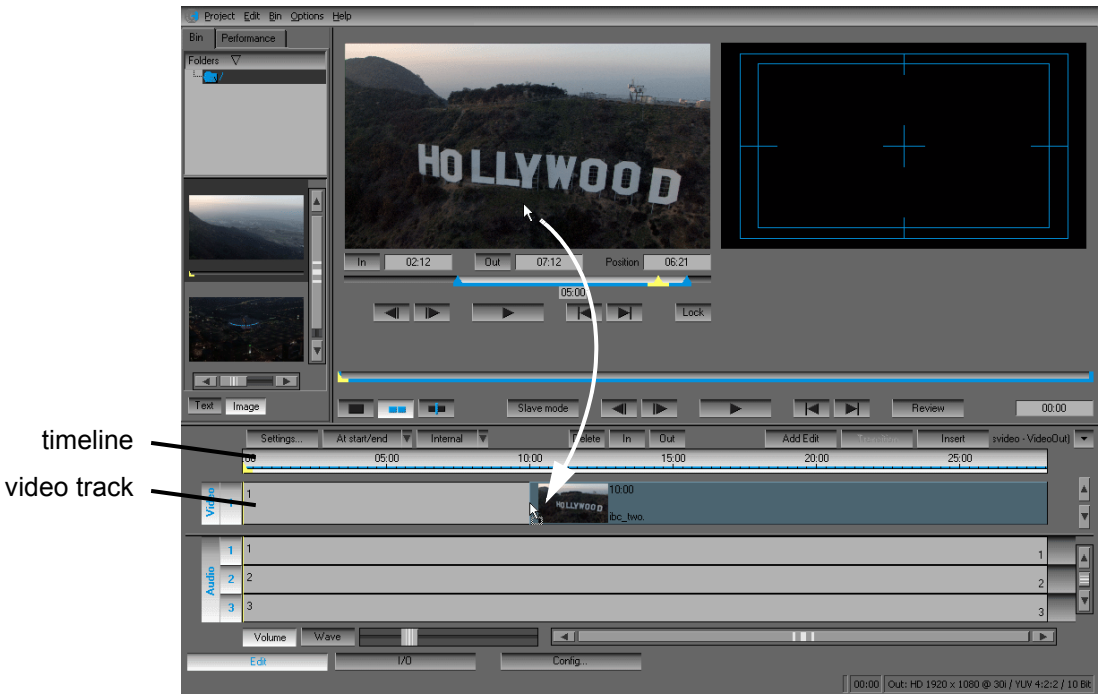


Figure 6-2: Drag and drop of clip to timeline

Once the mouse button is released, a representation of the clip is added to the timeline.

Usually, the clip’s position (its inpoint) within the timeline is set during the drag-and-drop procedure by the mouse pointer where the clip is released. Only when the timeline is empty and the insert mode is activated for the CLIPSTER Edit Tool, the clip will be aligned automatically at the starting point of the timeline. Its outpoint is defined by the set outpoint made in the master mode. These attributes can be changed easily after the clip was added to the timeline which is described in section “Changing the In- and Outpoints of Clips” on page 6-39.

To switch the control area back to its edit mode use the appropriate button of the control area ( ).

6.2 Configuring the Timeline

Because the timeline is the most important part of the CLIPSTER Edit Tool, it can be configured freely and thus be adapted to your individual needs. For a more comfortable working with the Edit Tool, you can change the layout of the timeline area in various ways. You can also adjust the timeline scale to the needs of your project, e.g. by defining a special offset. Furthermore, you have to define the necessary output format of the timeline, for example, to view your project on a monitor connected to CLIPSTER or to play out the timeline. All this will be described in the following sections.

Most configurations and settings will be stored together with your project in a project file.

6.2.1 Changing the Layout of the Timeline Area

Because in the timeline area most of the editing work is performed, you can change the layout of the timeline area to adapt it to your personal needs for a more comfortable working. The layout can be changed in several ways, for example, by adjusting the size of the video and audio tracks.

The 'Minimize' Button

With one click on the **MINIMIZE** button of the timeline controls you can hide the timeline area and maximize the view of the video overlay. This button is located at the top right side of the timeline area:

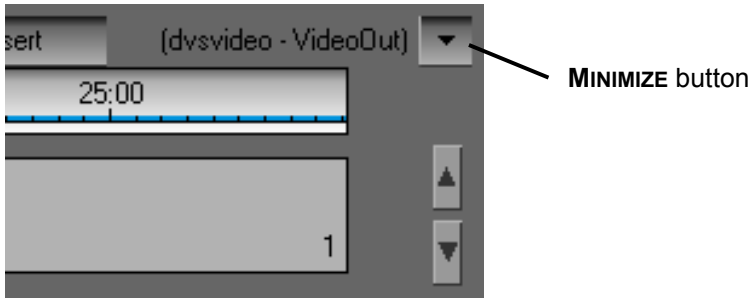


Figure 6-3: Button to minimize the timeline area

After activation only the buttons of the timeline area and the sliders to change the view of the timeline are still visible and can be used as usual.

Changing the Area Size Manually

You can change the size of the timeline area manually. For this move the upper edge of the timeline area up or down with the mouse to en-

large or reduce the timeline area. The size of the tool and control area together with its video overlay will adjust itself automatically.

Figure 6-4: Adjusting the size of the timeline area

If you pull the edge completely down, the timeline area can be hidden. Then only the sliders to change the view of the timeline will still be visible and usable. You can also pull the edge completely up to hide the tool and control area.

In the same way you can adjust the size of the audio track area. Take the edge directly above the audio tracks and move it up or down. If you pull the edge completely down, the audio tracks will be hidden. If you pull it farthest up, you can hide the video track(s).

Video and Audio Track Properties

Via the **SETTINGS…** button you can alter the size and number of video and audio tracks. It is located at the top left side of the timeline area. After pressing this button the **'Output settings'** window is displayed.

At the bottom of this window you can find in the **Options** area further optional settings. To the left you can find settings to alter the size and number of the video and audio tracks in the timeline of the CLIPSTER Edit Tool:

The items of the cropping feature and the further audio configuration are explained in section “Cropping the Timeline” on page 6-16 and section “Further Audio Configurations” on page 6-15.

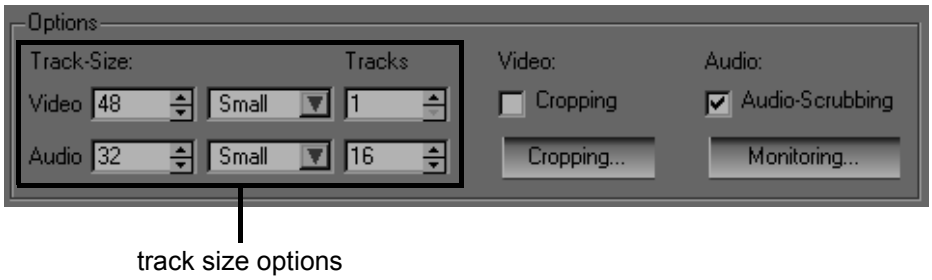


Figure 6-5: Track size options

With the fields for the track sizes you can adjust the height of the tracks for video and audio separately. Either alter the sizes manually

by entering the pixel height or select one of the preset sizes from the combo boxes in the middle (`Small`, `Medium`, `Large`).

Additionally, you can find here to the right entry fields where you can set the amount of audio and video tracks that will be visible in the timeline area of the CLIPSTER Edit Tool. Up to 99 audio and video tracks each can be displayed and used with the CLIPSTER software and video system.

Working with several video tracks vertically in the timeline is different from the usual approach of a horizontal editing in a timeline. Then the different tracks of the timeline form a stack. Further information about this and how to work with vertical editing can be found in section “Vertical Editing of Video Clips in the Timeline” on page 6-55.

6.2.2 Changing the Appearance of Video Clips

To the right of the **SETTINGS…** button you can find the thumbnails combo box. When you activate the arrow to the right of the combo box, you will receive a drop-down list:

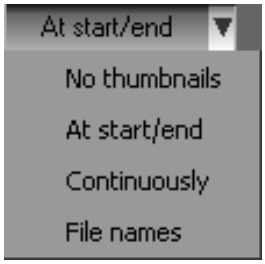


Figure 6-6: List of thumbnails combo box

From this list you can select the view of the video track(s), i.e. you can select the way the clips’ representations are displayed in the video track(s). For example, the clips can be shown with continuous thumbnails in the video track(s):

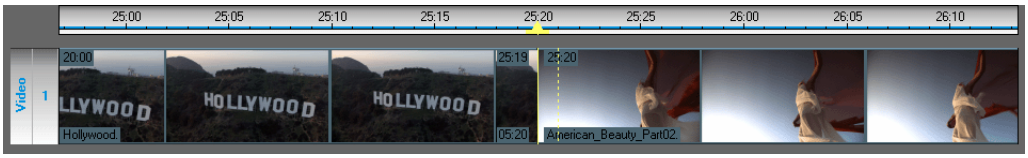


Figure 6-7: Continuous thumbnails

In detail the clips in the video track(s) can be set to the following appearances:

Selection	Meaning
`No thumbnails`	The clips' representations in a video track of the timeline are shown without thumbnails.
`At start/end`	Thumbnails from the clips are displayed at the start and the end of the clips only (e.g. as shown in figure 3-6 on page 3-9).
`Continuously`	All clips in the video track(s) are filled with thumbnails continuously (as shown in the example figure above).
`File names`	Instead of seeing the thumbnails continuously, the clips are filled with their file names instead, i.e. you will see the original file names of the respective image files throughout the clip which may be especially helpful during frame-accurate editing.

6.2.3 Configuring the Timeline Scale

The timeline scale can be adapted to the needs of your project, for instance, by setting a special offset.

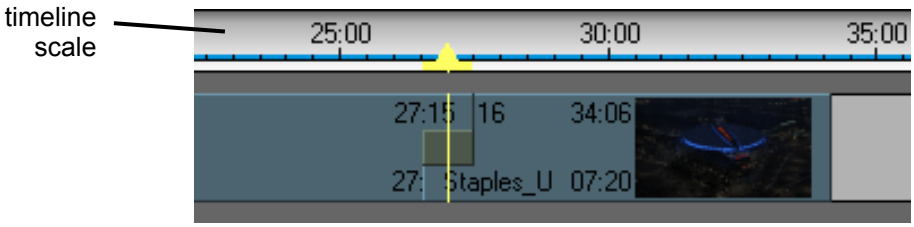


Figure 6-8: The timeline scale

For this you have to use the Configuration Tool of CLIPSTER. There you can set in the group **Timecode** the offset for the timecode or change the scale to a display of the frame numbers (see "CLIPSTER Configurations" user guide for more information). This will change the setting of the length and position indicators for video material in the whole CLIPSTER software package.

6.2.4 Configuring the Tooltips of Clips

All clips added to the timeline of the CLIPSTER Edit Tool, i.e. video as well as audio clips, provide various information via tooltips. These in-

formation can be displayed as soon as the mouse cursor is placed over a clip:

Figure 6-9: Tooltip of video clip

Then you can see, for example, the file name of the clip or its in- and outpoint on the timeline. The information displayed via the tooltips can be adjusted freely to your individual needs with the Configuration Tool of CLIPSTER (see “CLIPSTER Configurations” user guide for more information).

Additionally, you have the possibility to turn on or off the tooltips of the clips in the timeline. For this call up the context menu on either a video or an audio clip (usually invoked with a right-click of the mouse) and select the menu option ***Enable tooltip*** (see also section “The Context Menu of Video Clips” on page 6-49 or section “The Context Menu of Audio Clips” on page 6-58 for further information).

The tooltips can also be enabled or disabled via the Configuration Tool of CLIPSTER (see “CLIPSTER Configurations” user guide for more information).

6.2.5 Changing the Display Type

To the right of the thumbnails combo box you can find the display type combo box where you can set the way the position information is displayed by the clips in the timeline of the CLIPSTER Edit Tool.

The position information of each clip are shown in the clip’s text information after they were added to the timeline (top left and top right, see section “The Clip’s Information” on page 6-48) and in the timecode fields of a bin clip dragged to the control area (see section “The Master Mode” on page 5-9).

When you select the arrow to the right of the combo box, a drop-down list will be available where you can set the display type:

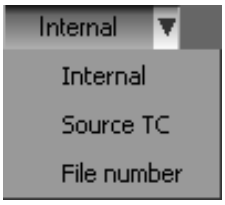


Figure 6-10: List of the display type combo box

From this list select the display type that should be used for the clips in the timeline.

Selection	Meaning
`Internal`	The clips use the internal timecode of the CLIPSTER Edit Tool's timeline.
`Source TC`	The clips in the timeline use the timecode provided by their file header and set either via the Configuration Tool of CLIPSTER or via the clip's properties. If clips do not provide a source timecode of their own, they can be configured to show a virtual source timecode via their properties in the bin. Further information about source timecode can be found in section "Notes on Source Timecode" on page 2-11.
`File number`	With this setting the clips in the timeline will show you the number of the respective image file, e.g. the image *`Hollywood00231.dpx`* as the starting point of the clip will be shown with `231`.

If `Source TC` was selected but the clips provide no timecode information in the file header, no timecodes are displayed by the clips in the CLIPSTER Edit Tool. Likewise the frame number viewing for the timeline (see section "Configuring the Timeline Scale" on page 6-8) has no effect on the source timecode displayed by the clips, i.e. you will still see the respective source timecode for the clips.

6.2.6 Configuring the Video and Audio Output

To output video and audio and to view your project's timeline with a monitor connected to CLIPSTER, you have to configure the output format of the timeline accordingly. Both, the video and audio output, can be configured freely.

How to Configure the Video Output

With the button **SETTINGS…** at the top left side of the timeline area you can determine the output format (video raster) of the project. Here you can also set the size of the video and/or audio tracks as well as adjust their numbers. There is also a setting available that performs an autoscaling of the material in the timeline if its resolution differs from the configured output raster.

After pressing the button **SETTINGS…** the following window will be displayed on the screen:

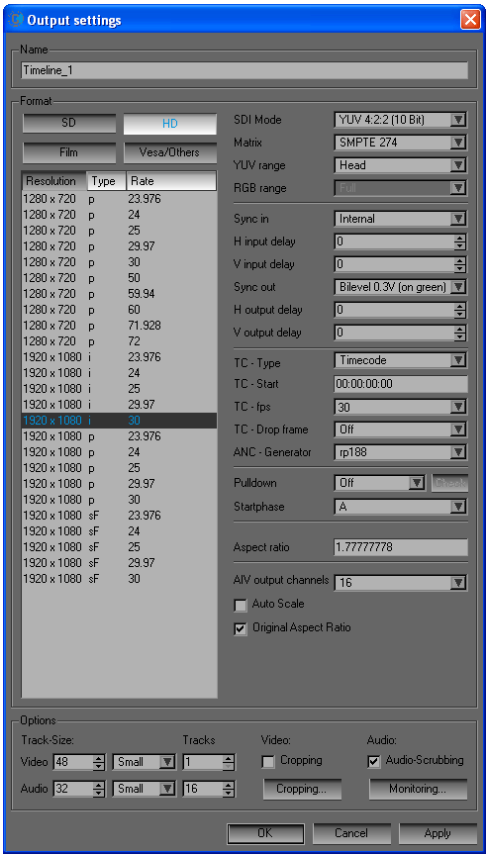


Figure 6-11: Window to set the output settings

Set the video output settings accordingly. Usually all outputs of CLIPSTER (except the SD outputs) will change their output format respectively. Depending on the selected video format the video overlay of the CLIPSTER Edit Tool may change its aspect ratio (16:9, 4:3, etc.).

Rasters for film not included in the SDI standard (i.e. 2K with 20 Hz or more) are output via the analog and DVI outputs only.

Some external devices have difficulties when handling embedded audio that provides more than four audio channels. In the video output settings the amount of audio channels that will be embedded in the video signal (AIV) can be set.

In the Configuration Tool of CLIPSTER (see “CLIPSTER Configurations” user guide) you can configure the SD outputs as well as set an output raster that CLIPSTER should use as the default raster after starting the CLIPSTER software.

In the **’Output settings’** window you have further configuration possibilities at hand via the **Options** area at the bottom of the window. Here you can configure the video and audio track sizes as well as the number of tracks (see section “Changing the Layout of the Timeline Area” on page 6-5), a cropping for the whole timeline (see section “Cropping the Timeline” on page 6-16) and the analog audio outputs to monitor audio during your editing work (see section “Further Audio Configurations” on page 6-15).

The rest of the available items in this window, i.e. the items of the areas **Name** and **Format**, are described in more detail in the “CLIPSTER Configurations” user guide.

How to Configure the Audio Output

The timeline area contains several audio tracks where you can add audio clips in the desired sequence and set fade-ins and -outs. To output audio via the digital audio outputs of CLIPSTER you have to configure the audio output accordingly.

The number of audio tracks displayed in the CLIPSTER Edit Tool can be set freely (see section “Video and Audio Track Properties” on page 6-6).

By default channel 1 and 2 in stereo mode are set for all tracks as the audio output.

To the right of each audio track you can find a button:

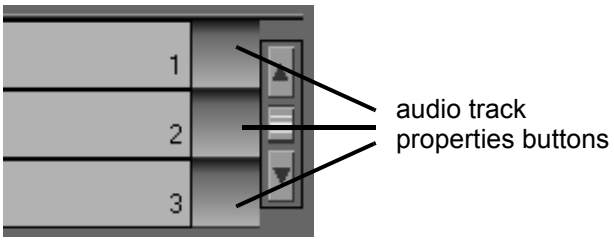


Figure 6-12: Buttons to configure the audio output settings

With them you can set for each track separately the audio output. After pressing one of the buttons the following window will be displayed:

Figure 6-13: Window to configure the audio output settings

In the area **Audio mode** select whether the audio mode of the track should be in mono or in stereo. The CLIPSTER Edit Tool applies the selected audio mode directly to the respective audio track and it will be down- or up-mixed before it reaches any output.

While the smallest unit of a video clip is a single frame, the smallest unit of an audio clip is a sample. CLIPSTER provides up to 48,000 samples per second of audio (48 kHz) opposed to the respective video frequency setting (frames per second) for the video output. With the area **Slip sync** you can bring your video and audio output into synchronization by adjusting the audio offset. For this the area provides different settings items where you can specify the positive or negative offset values in milliseconds, samples, frames, or via a timecode. If you adjust one setting, the other ones will be set accordingly. With the check box **Copy to all tracks** the adjusted offset can be transferred to all other available audio tracks easily: Simply enable the check box and confirm your setting with the **OK** button to copy the synchronization settings to all audio tracks.

In the area **Output paths** you can see the different digital audio channels that CLIPSTER provides. With a click on the respective button select the digital audio channel(s) that should be used for the output. An activated **+** button between two channels configures the two channels to stereo.

With the settings of the area **Audio mode** and the ones of the area **Output paths** you can mix the audio signals of your project according to your needs:

– If the audio clip in the timeline is in mono, it does not matter whether the audio track is set to stereo or mono. The output on all selected channels will be the same, i.e. the mono audio clip as it is available in the timeline.

Audio Clip	Audio Track	Output
Mono	Mono	Mono of clip
Mono	Stereo	Mono of clip

If the audio clip is in mono, the settings for the track's audio mode and the channel's **+** button provide, of course, no function regardless of their setting.

– If the audio clip in the timeline is in stereo and the audio track is configured to mono, the clip will be down-mixed by the CLIPSTER Edit Tool. On all selected channels you will receive the same signal.

Audio Clip	Audio Track	Output	
		Channel 1	Channel 2
Stereo	Mono	Mono of stereo clip	Mono of stereo clip

– If the audio clip in the timeline is in stereo and the audio track is configured to stereo, the output will depend on the state of the **+** button, i.e. whether the channels are configured as stereo or mono channels: When the channels are set to mono, a mono signal of the down-mixed stereo clip will be provided. If the channels are set to stereo, a standard stereo signal will be output.

Audio Clip	Audio Track	Output		
		+ Button	Channel 1	Channel 2
Stereo	Stereo	Mono (deactivated)	Mono of stereo clip	Mono of stereo clip
Stereo	Stereo	Stereo (activated)	Channel 1 (left) of stereo clip	Channel 2 (right) of stereo clip

Once the settings for the respective track are set, confirm and activate them with the button **OK** of the **'Track Properties'** window.

With CLIPSTER it is not necessary to configure the output of audio further because it will be given out via AES/EBU and embedded in the video signal simultaneously. However, via the **SETTINGS…** button in the timeline area of the CLIPSTER Edit Tool you can configure the analog audio outputs to monitor audio during your editing work (see section "Further Audio Configurations" on page 6-15) as well as the maximum amount of audio channels that will be embedded in the video signal (see "CLIPSTER Configurations" user guide).

6.2.7 Further Audio Configurations

Via the **SETTINGS…** button you can configure the analog audio outputs to monitor audio during your work with the software. It is located at the top left side of the timeline area. After pressing this button the **'Output settings'** window is displayed.

At the bottom of this window you can find the **Options** area where further optional settings are provided. To the right you can find the settings items for a further configuration of audio:

The items of the track size options and the cropping feature are explained in section "Changing the Layout of the Timeline Area" on page 6-5 and section "Cropping the Timeline" on page 6-16.

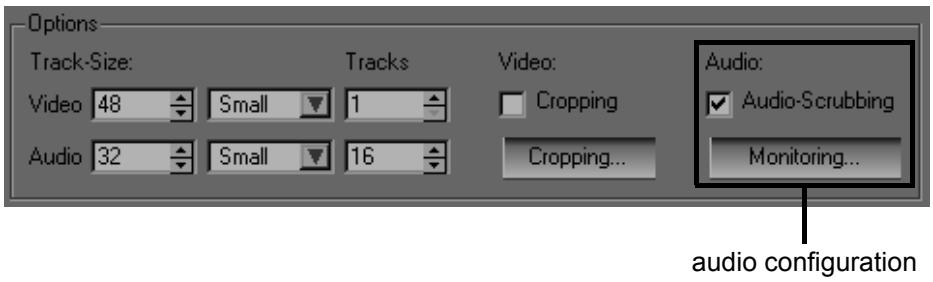


Figure 6-14: Items for a further configuration of audio

In detail this area provides the following items:

Audio Scrubbing — If this setting is activated, during a scrubbing of the CLIPSTER Edit Tool's timeline, for example, with a fast shuttle operation with the mouse, the contents of the audio tracks will still be given out. Then the audio signal resembles and imitates a fast shuttle operation of a VTR. For this the analog audio signal has to be configured appropriately via the button **MONITORING…**.

MONITORING… The button **MONITORING…** configures the analog audio outputs of CLIPSTER. A click on this button opens the following window:

Figure 6-15: Analog audio configuration

The settings **Output A** and **Output B** configure the first and second analog monitoring output of the CLIPSTER hardware respectively. Select from the combo boxes the audio channels that should be given out at the respective analog output.

If you want to play out other audio channels than channel 1 and 2 on the analog audio outputs, the audio outputs of the audio tracks of the CLIPSTER Edit Tool have to be configured appropriately. Further information about this can be found in section “How to Configure the Audio Output” on page 6-12.

The rear of the CLIPSTER hardware provides analog audio outputs where you can then monitor the audio output.

6.2.8 Cropping the Timeline

Via the **SETTINGS…** button you can crop the contents of your timeline, for example, if you need black bars in the video output. The button is located at the top left side of the timeline area and after pressing it the **’Output settings’** window is displayed on the screen.

At the bottom of this window you can find further optional settings in the **Options** area. In the middle you can find the settings to crop the video output:

The items of the track size option and the further audio configuration are explained in section “Changing the Layout of the Timeline Area” on page 6-5 and section “Further Audio Configurations” on page 6-15.

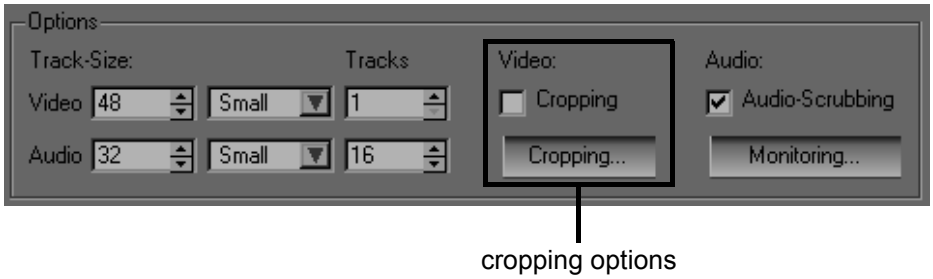


Figure 6-16: Cropping options

With these items you can adjust and crop the output image, for example, to add black bars to your video output. A click on the button **CROPPING...** opens the following settings window:

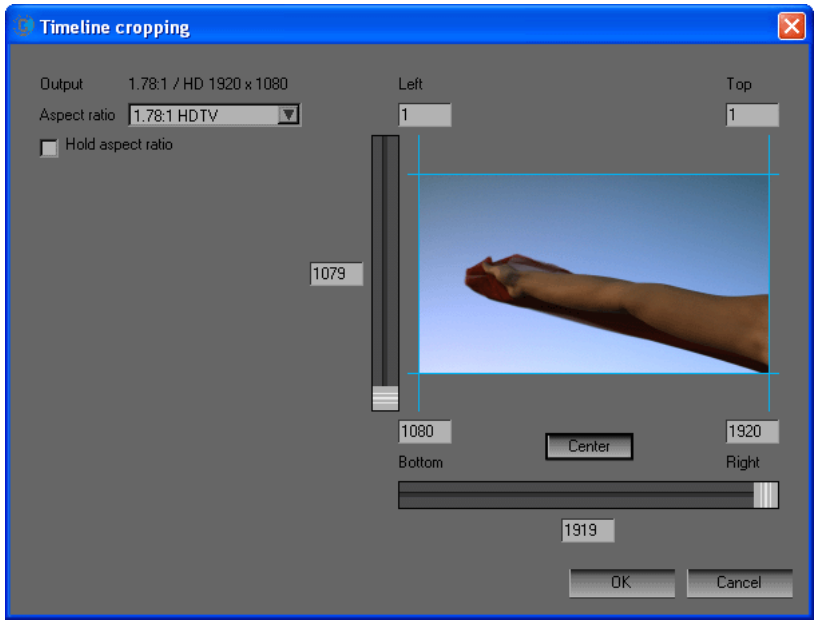


Figure 6-17: Window to crop the video output

All cropping settings configured in this window will appear at the video output of CLIPSTER as well. However, this is temporary and for monitoring reasons only. To apply the settings to the timeline the cropping has to be activated with the check box **Cropping** in the **Options** area of the **'Output settings'** window (see below).

At the top left of the **'Timeline cropping'** window you can find items to control the aspect ratio of the cropped image.

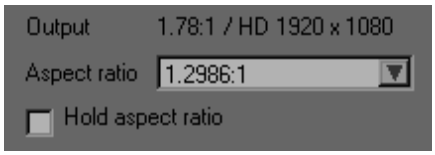


Figure 6-18: Aspect ratio controls

The **Output** information at the top provides you with details about the currently set video format and its aspect ratio. Directly below it you can find the **Aspect ratio** combo box where you can either select one of the predefined aspect ratios from the provided list or simply enter the desired ratio in the field of the combo box directly. You can enter the aspect ratio in any format you like either by typing in a floating point number or its original division formula. The cropping will be applied to the video output representation to the right as well as to your video output directly as soon as a predefined aspect ratio is selected or a typed in value is confirmed by pressing the [Enter] key.

Notation:	Floating point or division (`x:y`)
Examples:	`1.77777778`
	`16:9`

With the **Hold aspect ratio** check box you can lock the aspect ratio selected with the combo box above. Then, when changes are applied manually to the cropping (e.g. via the entry fields or the sliders), the chosen aspect ratio will be maintained.

To the right you can find a representation of your current video output. With the items provided by and positioned around the image you can change the cropping manually:

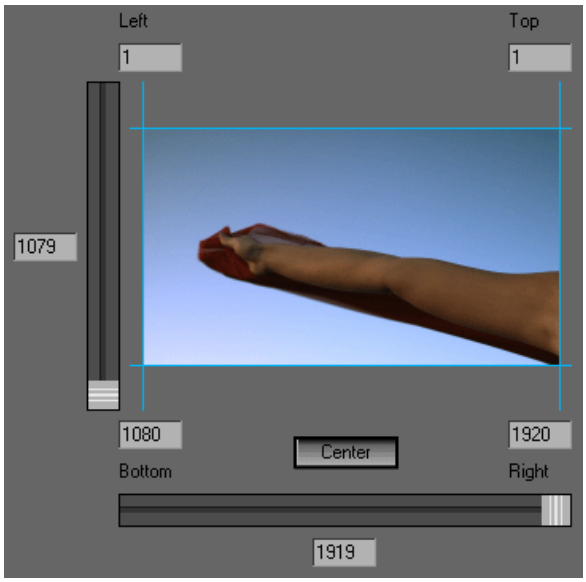


Figure 6-19: Manual controls of cropping

To change the cropping manually use, for example, the available entry fields and type in the desired values. The cropping will be applied to the representation as well as to your video output as soon as a value is confirmed by pressing the [Enter] key.

You may also use the sliders at the bottom and to the left to change the cropping. Furthermore, you can select the cropping borders as well as the cropped image to manually adjust the cropping. The sliders as well as the entry fields and, if applicable, the aspect ratio to the left will be altered accordingly:

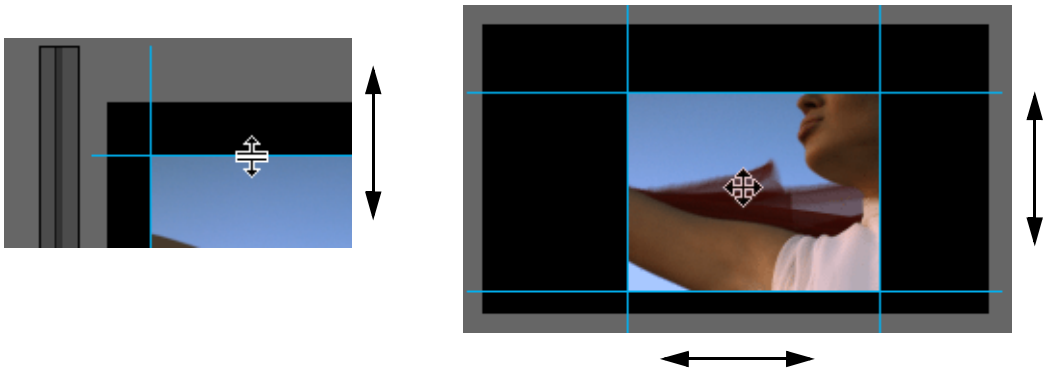


Figure 6-20: Adjusting the cropping manually with the mouse

Once everything is set as desired, confirm your selection with the **OK** button at the bottom of the **'Timeline cropping'** window. The button **CANCEL** right beside it will close the window for the cropping settings without confirming any of the alterations.

However, the cropping will be in effect for the timeline only if the check box **Cropping** in the **Options** area of the **'Output settings'** window is activated. Then the configured cropping will be applied to the whole timeline of the CLIPSTER Edit Tool.

The color value of the black bars added to the timeline via cropping and played out via the CLIPSTER hardware depends on the setting for the color space range specified in the video output settings. Via the color space range settings you can determine whether this value is given out restricted (e.g. with a value of 16, setting: `Head`) or in a full value range (with a value of 0, setting: `Full`). Further information about color space ranges and how to set them can be found in the "CLIPSTER Configurations" user guide.

6.3 Controlling the Timeline

Most work is performed in the timeline of the CLIPSTER Edit Tool directly. In the timeline you can arrange the sequence of video clips, cut the material or set transitions and other operators for the clips. Furthermore, you can play out the timeline, either the whole timeline or a defined range of the timeline.

This section explains in detail how to control the timeline. It will be explained how to move within the timeline and how to set an in- and outpoint for the timeline to play out or finalize the selected range only.

6.3.1 Moving within the Timeline

The CLIPSTER Edit Tool provides two representations of the timeline in its user interface: There is the timeline with timeline scale and audio and video tracks in the timeline area, and there is a scrub bar of the timeline in the control area of the CLIPSTER Edit Tool. Both can be used to move within your project.

Other functions and items to move inside the timeline are provided by the CLIPSTER Edit Tool as well.

Moving via the Timeline Scale

With the timeline scale you can move within your project and position the timeline cursor.

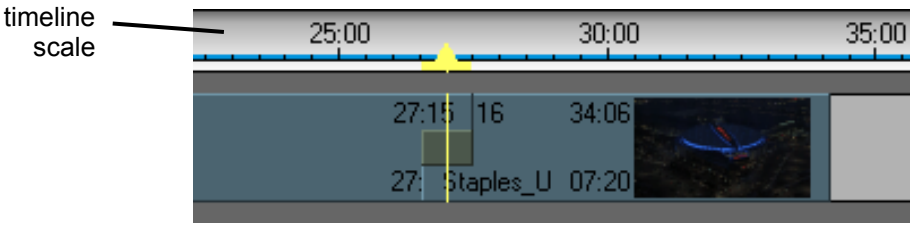


Figure 6-21: The timeline scale

To move within your project click on a point in the scale and the timeline cursor will be positioned there. Additionally, by selecting the cursor and moving it to the left or right you can scrub the visible part of the timeline here.

This part of the timeline together with the video and audio tracks can be scaled from a full view of the timeline to a partial view that consists of a few frames only. Via the sliders below the audio tracks in the timeline area you can change the view of the timeline and thus move easily and frame accurately within your project:

Figure 6-22: Timeline sliders

With the left slider you can zoom in or out of the timeline. If the slider is set to the leftmost point, you are able to see the whole contents of the timeline. When it is set more to the right, you will zoom into the timeline.

When you have zoomed into the timeline, you can change the viewing position of the timeline with the right slider. You can go to the end of the timeline by pulling this slider to the right, and to the beginning of the timeline by pulling it to the left.

Via the Configuration Tool of CLIPSTER (see “CLIPSTER Configurations” user guide) you can set the way the CLIPSTER Edit Tool performs a zooming on the timeline. There you can set whether the zooming should occur on the position of the timeline cursor or on the current viewing position of the timeline.

The cursor of the timeline provides a special feature when zoomed far into the timeline: Then it provides a frame-end marker which indicates where this particular image ends in the timeline.

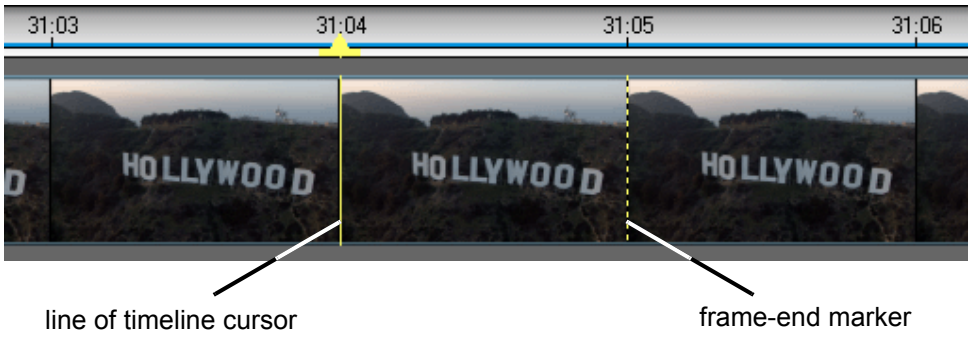


Figure 6-23: Timeline cursor when zoomed into the timeline

As you can see in the figure above the frame selected with the cursor is the 4th frame of the 31st second and it ends where the 5th frame starts. The frame-end marker is very useful when you want to perform frame accurate cuts or other edit works.

Moving via the Scrub Bar of the Control Area

In contrast to the timeline of the timeline area the scrub bar of the control area always shows the complete timeline of the loaded project. It can also be used to move within your project:

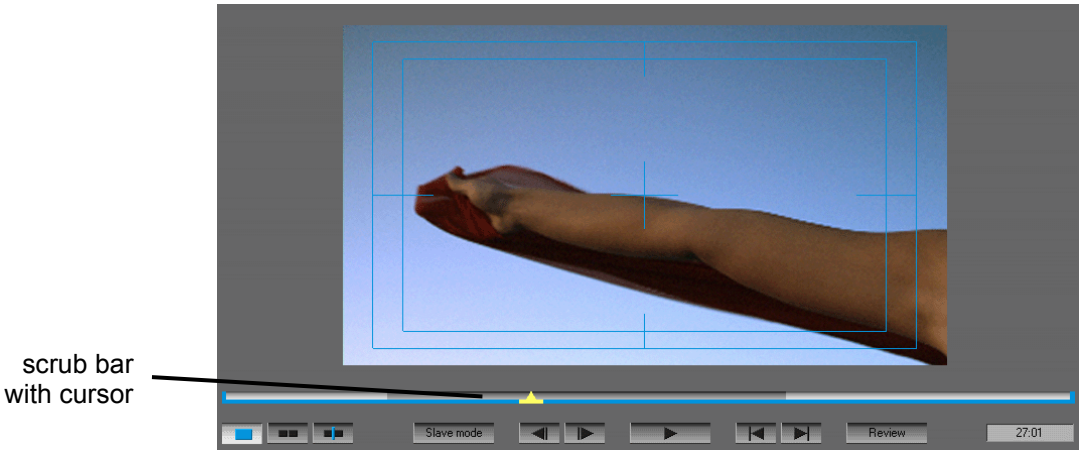


Figure 6-24: The scrub bar

There are several ways to move within your project with the scrub bar of the control area:

– Select the scrub bar cursor ( ) with the mouse and move it to the left or right to the desired position.
– Click on a position on the scrub bar outside the visible part of the timeline to move the scrub bar cursor there instantly.
– You can also move the visible part of the timeline on the scrub bar to the left or right with the mouse to select another part of the timeline in the timeline area for viewing.

Further information about the scrub bar can be found in section “The Scrub Bar of the Control Area” on page 5-3.

Other Ways to Move within the Timeline

For a frame accurate moving or to play out and review the timeline you may use the controls of the control area of the CLIPSTER Edit Tool. With them you can jump to cutting points and timeline markers or step one frame for- or backwards. They are in detail described in section “Controls” on page 5-5.

Of course, via a play-out you can also move within the timeline. There are several ways to play out the timeline:

– You can play out the whole timeline,
– you can review a part of the timeline, and
– you can play out a part of the timeline.

The first two are also initiated via their respective controls of the CLIPSTER Edit Tool (the play and **REVIEW** button). However, to play out a defined part of the timeline only, you have to set an in- and outpoint for the timeline. How to do this is described in section “Setting In- and

Outpoint for the Timeline” on page 6-23. Once they are set, you can initiate a play-out of the defined range with the play button of the controls (see section “Controls” on page 5-5).

In addition to the controls of the user interface, there are a lot of keyboard shortcuts available. These complement the controls (some of them do not even have a control element in the user interface) and you can use them for a faster working with the software. A listing of all keyboard shortcuts can be found in section “Keyboard Shortcuts” on page A-3.

For example, via the keyboard shortcuts you can initiate a reverse play-out of the timeline (key [J] which decreases the speed by one (-1)).

6.3.2 Setting In- and Outpoint for the Timeline

With the buttons **DELETE**, **IN** and **OUT** of the timeline area you can set an in- and outpoint for the timeline. A play-out and finalizing (if set accordingly) will then be performed in the defined range between in- and outpoint only.

The way the timeline is played out can be configured with the Configuration Tool of CLIPSTER (see “CLIPSTER Configurations” user guide for more information). The way a finalizing is performed can be configured during the setup of the finalizing process (see section “Finalize…” on page 7-7).

The **DELETE** button is a toggle button. If it is activated (

) you can delete the in- or outpoint by clicking the **IN** or **OUT** button. Regardless of the position of the timeline cursor the in-/outpoint will be deleted.

If the **DELETE** button is deactivated, a click on the **IN** or **OUT** button will set the in- or outpoint respectively at the current position of the timeline cursor.

The **IN** button sets or deletes the inpoint of the timeline depending on the state of the **DELETE** button. The inpoint will be set at the position of the timeline cursor.

The **OUT** button sets or deletes the outpoint of the timeline depending on the state of the **DELETE** button. The outpoint will be set at the position of the timeline cursor.

Setting an In-/Outpoint

To set an in-/outpoint perform the following:

- Move the timeline cursor via its controls or manually (see section “Moving within the Timeline” on page 6-20) to the position where the in-/outpoint should be set.
- Press the **IN**/**OUT** button.

An in-/outpoint can only be defined once. If you set it anew, the previous one will be replaced.

The in-/outpoint will be set at this position. The still selected part of the timeline will be displayed as usual whereas the deselected part is shown in a dimmed fashion in the video and audio tracks. Furthermore, in the timeline scale the selected part of the timeline will be marked with a blue line like the one used to set in- and outpoint of bin clips (see section “Setting In- and Outpoint for the Clip from the Bin” on page 5-12):

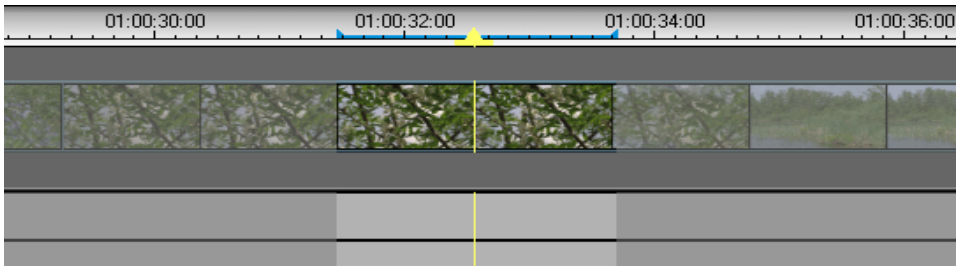


Figure 6-25: Timeline with set in- and outpoint

With a set in- and outpoint a play-out of the timeline will then be performed between in- and outpoint if set accordingly via the Configuration Tool of CLIPSTER (see “CLIPSTER Configurations” user guide).

Deleting an In-/Outpoint

To delete an in-/outpoint perform the following:

- Press the button **DELETE** to activate the deletion mode for the in- and outpoint.
- Click the **IN**/**OUT** button.

The in-/outpoint will be deleted. If both are deleted, the whole timeline will be available again for a play-out.

6.4 Working with the Timeline in General

After adding clips to the timeline (see section “Adding Clips to the Timeline” on page 6-2), you can begin your editing work by, for example, altering the sequence of clips, cutting clips or defining transitions.

To view your work on an additionally connected monitor, you have to configure the output format of the timeline accordingly (see section “How to Configure the Video Output” on page 6-11).

Performing editing work on clips in the timeline of the CLIPSTER Edit Tool is very easy because most editing functions are immediately at hand where they are needed most. For example, the transition properties can be accessed directly from its visible part in a video track.

You can use the video overlay of the CLIPSTER Edit Tool to monitor and check the progress of your work. Mostly, the editing work and its output effect can be seen with the video overlay instantly. For example, clips of different sizes in the video track(s) of the timeline may get cropped, stretched or compressed, or scaled according to your settings for the respective clips and your output settings. All these effects can be viewed instantaneously via the video overlay of the control area.

CLIPSTER uses only representations of the original material on the video hard disks for the clips in the bin and the timeline. All editing tasks are performed virtually and at all times your original material will never be altered.

This section describes how to work with the timeline of the CLIPSTER Edit Tool in general.

6.4.1 The Insert/Overwrite Mode of the Timeline

The **INSERT** button toggles between the insert and overwrite mode of the CLIPSTER Edit Tool.

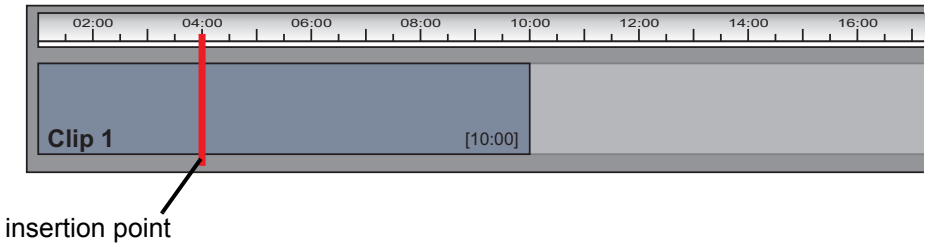
Insert Mode

In the insert mode, a moved or added clip is inserted between the video material already present in the timeline. The video material behind the insertion point is moved backward in its position on the timeline. In the insert mode no video material will be overwritten and intact (undivided) clips will be divided at the insertion point. If a clip is added to an empty timeline track, the clip will automatically be adjusted to the beginning of the timeline.

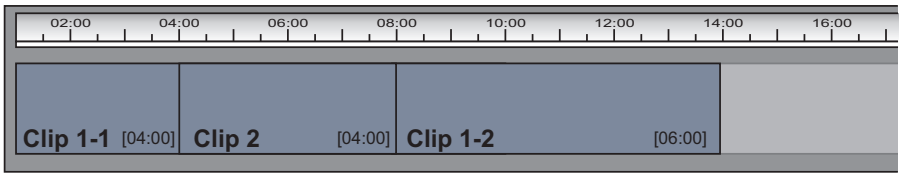
To set a transition in the insert mode there must be enough head and tail available, otherwise the **TRANSITION** button will not be available. For more information about transitions see section “Handling Transitions” on page 6-32.

Example:

With the insert mode activated add a clip from the bin to the timeline or move a clip to the middle of an intact clip:



The result will be that clip no. 1 gets divided at the insertion point: The added clip no. 2 will be placed here while the rest of clip no. 1 moves to the end of clip no. 2:



Overwrite Mode

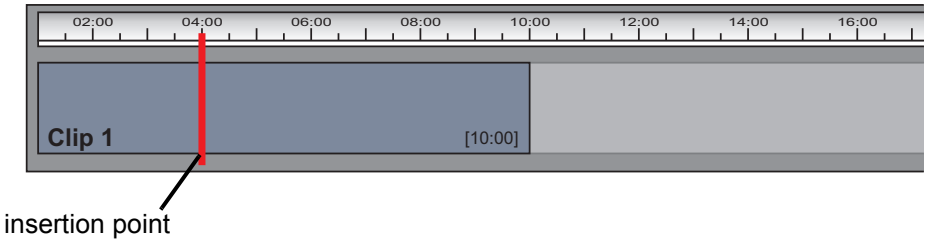
In the overwrite mode a moved or added clip replaces the video material behind the insertion point.

In the overwrite mode you can set a transition between two neighboring clips at all times. If needed, the CLIPSTER Edit Tool will create the necessary head and tail automatically. This means that parts of the clips may be moved to enable the transition which, in turn, may cause gaps in the timeline. For more information about transitions see section “Handling Transitions” on page 6-32.

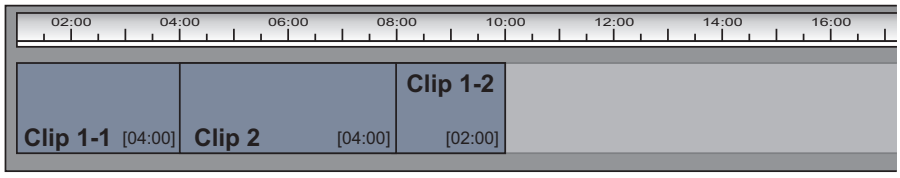
In the overwrite mode you can select more than one clip or operator embedded in the timeline at a time. Keep the [Ctrl] key pressed while selecting clips or operators with the mouse.

Example:

With the overwrite mode activated add a clip from the bin to the timeline or move a clip to the middle of an intact clip:



The result will be that clip no. 1 gets divided at the insertion point: The added clip no. 2 will be placed here while the rest of clip no. 1 will be overwritten:



6.4.2 Enabling or Disabling Tracks

The video and audio tracks of the CLIPSTER Edit Tool can be enabled or disabled for the editing work or a play-out. If a track is disabled, neither play-out nor editing work, e.g. cutting clips, will be performed in this track.

To enable or disable a track you have to use the buttons right in front of the tracks:

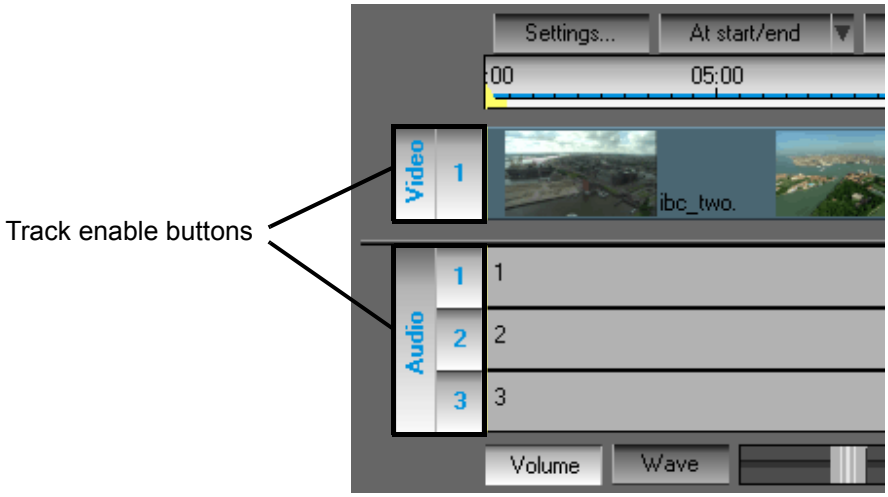


Figure 6-26: Track enable buttons

Use the buttons labelled **VIDEO** or **AUDIO** to enable or disable all video or audio tracks with one click.

Use the buttons carrying the number of the respective track to enable or disable this track alone.

button active	Active	Track is enabled
button inactive	Inactive	Track is disabled

The respective track is then enabled or disabled for the editing work. Furthermore, if a track is disabled, the contents of that track will not be used for a play-out, i.e. no video output and/or audio muted.

6.4.3 Moving Clips within the Timeline

To arrange the clips in the desired sequence on the timeline as they should be played out in the end you have to move the clips within the timeline which is very easy with the CLIPSTER Edit Tool. Simply select the clip and drag it with the mouse to the desired position on the timeline.

Although the following is demonstrated on video clips, the same applies to most timeline elements, e.g. audio clips and transitions, too.

Figure 6-27: Moving a clip

With the insert mode activated, if the clip is moved to a cutting point, the clip will be inserted there while the rest of the material moves backwards in the timeline. If it is dropped in the middle of another clip, this clip will be divided and its rest will be moved to the end of the inserted clip.

This behavior depends on the selected mode of the timeline. With the overwrite mode activated, the moved clip will overwrite the contents of the timeline from the point of the insertion on. See section “The Insert/Overwrite Mode of the Timeline” on page 6-26 for more details.

During the moving of a clip in the timeline you can see a representation of the dragged clip. It will be inserted and positioned exactly as shown by its representation. While moving and when the clip is long enough, the exact position of the clip in the timeline will also be displayed by the clip’s information (top left and right, see also section “The Clip’s Information” on page 6-48).

When the moved clip comes close to certain elements of the timeline, it will automatically snap and position itself to those elements. This is called the snapping mode of the CLIPSTER Edit Tool. It makes an easy positioning of elements possible. The moved clip will react to the following elements:

- starting point of timeline
- start and end points of timeline elements (e.g. clips and transitions)
- the position of the timeline cursor
- set in- and outpoint of the timeline

You can disable the snapping mode and activate a fine tuning mode by pressing the [Shift] key.

If you move a video clip in the overwrite mode of the CLIPSTER Edit Tool to a position where it is in no connection with previous or following clips, a gap will occur in the timeline. This is indicated by the CLIPSTER Edit Tool via a red line in the indicator line of the timeline scale:

Figure 6-28: A gap in the timeline

Then you have to move the other clips respectively or fill the gap by adding another clip (see section “Adding Clips of a Certain Length to the Timeline” on page 6-30), otherwise there will be nothing to output in this part of the timeline. More information about the overwrite mode can be found in section “Overwrite Mode” on page 6-27.

The starting point of a gap as well as its end is recognized by the CLIPSTER Edit Tool as cutting points. Thus, you can move frame accurately to gaps easily via the control buttons that jump to cutting points (see section “Controls” on page 5-5).

6.4.4 Adding Clips of a Certain Length to the Timeline

If you want to fill a gap in the timeline or fill a particular part of the timeline with other video or audio material, you can add a clip to the timeline with the help of the timeline’s in- and outpoint (3-point and 4-point editing). This will then fill the selected, particular part of the timeline.

To add a clip of a certain length to a particular part of the timeline perform the following:

- Move the timeline cursor to the position on the timeline where the clip to be added should start (see also section “Moving within the Timeline” on page 6-20).
- Click the **IN** button of the timeline area.

This will set the inpoint of the timeline to the current position of the timeline cursor.

- Now move the timeline cursor to the position of the timeline where the clip to be added should end.
- Click the **OUT** button of the timeline area.

After this you have set the in- and outpoint of the timeline to the position and length of the clip which it should provide after the adding procedure. For more information about the setting of the in- and outpoint of the timeline see section “Setting In- and Outpoint for the Timeline” on page 6-23. Now you have to prepare the clip from the bin for the procedure:

- Select the desired clip from the bin and drag it to the control area of the CLIPSTER Edit Tool as described in section “The Master Mode” on page 5-9.
- With the control area in the master mode select for the clip coming from the bin an in- and/or outpoint (see section “Setting In- and Outpoint for the Clip from the Bin” on page 5-12).

You do not have to define an outpoint for the clip necessarily. The clip will be cut to its correct length automatically due to the set outpoint in the timeline.

After this the clip from the bin is prepared to be added to the timeline.

For the next step you have to observe the insert/overwrite mode of the CLIPSTER Edit Tool: in the insert mode the contents of the timeline will be moved to its end while in the overwrite mode the contents of the timeline present between the set in- and outpoint will be overwritten (see also section “The Insert/Overwrite Mode of the Timeline” on page 6-26).

- Then add the clip to the timeline by dragging it from its video overlay of the control area to the set inpoint of the timeline. How to add a clip from the control area is described in section “Taking a Clip from the Control Area” on page 6-4).

With the snapping mode active the clip will adjust itself automatically at the inpoint of the timeline as soon as the mouse cursor is in close proximity to it. After releasing the mouse button the clip will be added at the exact position. Furthermore, if its length exceeds the length of the marked part of the timeline set via in- and outpoint, it will be trimmed to its exact length set by the outpoint of the timeline automatically.

Instead of taking a clip from the control area with an adjusted in- and/or outpoint, you may also select a clip directly from the contents area of the bin and add it to the timeline. Additionally, you have the possibility to select an inpoint as the clip’s starting point via the thumbnails scrub bar as described in section “Preparing Clips for Editing Purposes” on page 4-18.

6.4.5 Performing a Cut

Once at least one clip is present in the video or audio tracks of the timeline, you can cut the clip at the desired position.

To perform a cutting in a timeline track the respective track has to be enabled (see section “Enabling or Disabling Tracks” on page 6-28).

To cut a clip perform the following:

- Move the timeline cursor to the desired position in the timeline as described in section “Moving within the Timeline” on page 6-20.

  When zoomed far into the timeline, the timeline cursor provides a frame-end marker that indicates where the selected frame ends in the timeline (see also section “Moving via the Timeline Scale” on page 6-20). This may help you during the positioning of the timeline cursor.

- Then press the button **ADD EDIT**.

This will cut the clip and set a cutting/edit point at the selected position. Then you can, for example, delete one of these clips (select the clip and press the [Del] key on your keyboard), move it to another position (see section “Moving Clips within the Timeline” on page 6-29) or alter its properties differently (see section “Timeline Properties of Clips” on page 6-63).

6.4.6 Handling Transitions

When at least two clips are present in a video track of the timeline you can set a transition between these two clips. After the setting of a transition you can change its properties or, if applicable, prerender the transition (see section “Prerendering of Timeline Elements” on page 6-38). This section describes in the following the necessary procedures to handle transitions.

To set a transition the video track has to be enabled (see section “Enabling or Disabling Tracks” on page 6-28).

Setting a Transition

To set a transition perform the following:

- Move the timeline cursor to the cutting point between the two clips with the respective controls of the CLIPSTER Edit Tool (e.g. , see also section “Moving within the Timeline” on page 6-20 and section “Controls” on page 5-5). If you activate the trim mode, the CLIPSTER Edit Tool will automatically jump to the nearest cutting point (see section “The Trim Mode” on page 5-16).

This will make the button **TRANSITION** available in the CLIPSTER Edit Tool user interface.

To set a transition there must be enough head and/or tail available of at least one clip to make a blending possible, otherwise the button **TRANSITION** will be unavailable. You can create the necessary head and tail manually by adjusting the in- and outpoint of clips (see section “Changing the In- and Outpoints of Clips” on page 6-39).

If you are in the overwrite mode of the timeline, the CLIPSTER Edit Tool will create the head and tail for the transition automatically. This means that parts of the clips will be moved for the transition. Due to the moving of the clips the creation of a transition in the overwrite mode may cause gaps in the timeline. More information about the overwrite mode can be found in section “Overwrite Mode” on page 6-27.

- Select the button **TRANSITION**.

A transition appears between the two clips (by default set to a ’Cross-fade’ wipe and usually of one second length):

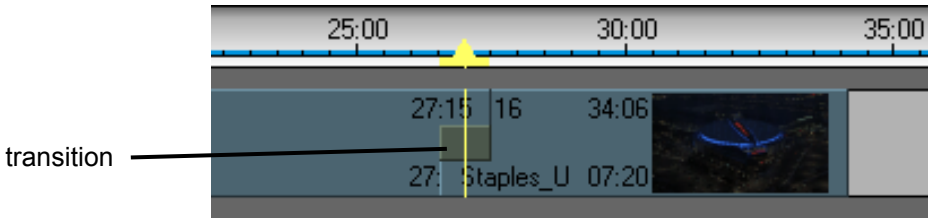


Figure 6-29: Transition between clips

The exact position of the transition depends on the available head and tail. If head and tail are sufficiently available for both clips, the transition will be positioned exactly in the middle of the timeline cursor.

The transition is now set and you can proceed, for instance, by altering its properties.

You can delete a transition the same way you delete a clip from the timeline. Simply select the transition and press the key [Del] on your keyboard or select from its context menu the menu option ***Delete***.

Depending on the resolution of the material and the type of operators used in the timeline, it may be necessary to prerender the transition. Further information about this can be found in section “Prerendering of Timeline Elements” on page 6-38.

Changing the Transition's Properties

By default a transition is set to one second length, if enough head or tail are provided, and as a wipe `Crossfade` is selected. This can be changed in the properties of the transition that you can access via its context menu:

- Invoke the context menu of the transition (usually with a right-click of the mouse) and select the menu option ***Properties***. Alternatively, you can double-click the transition in the timeline to call the window for the transition properties directly.

This will open the **'Transition Operator configuration'** window:

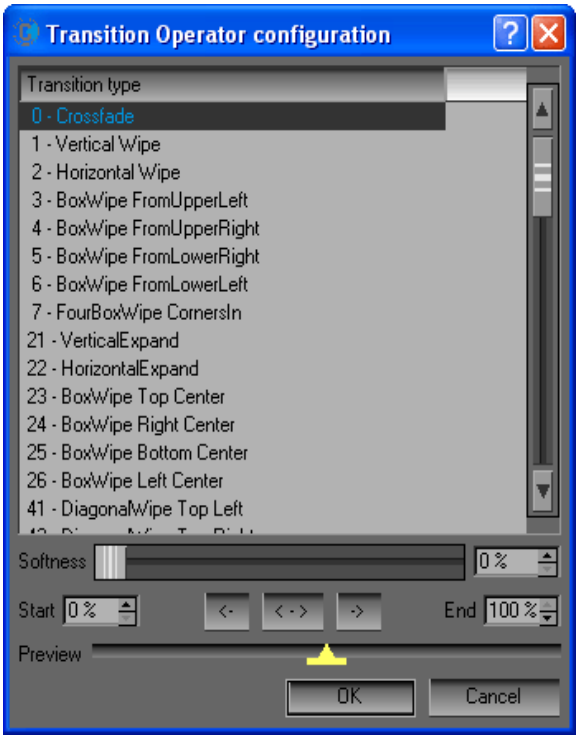


Figure 6-30: Window for the transition properties

- In this window select the desired wipe from the **Transition type** list box.

The following lists the transitions that are currently implemented. The numbers indicate the SMPTE number which are available in the **Transition type** list box as well:

The graphics show the effects of the respective wipe and, if not reversed, the transition occurs towards the (increasing) white area.

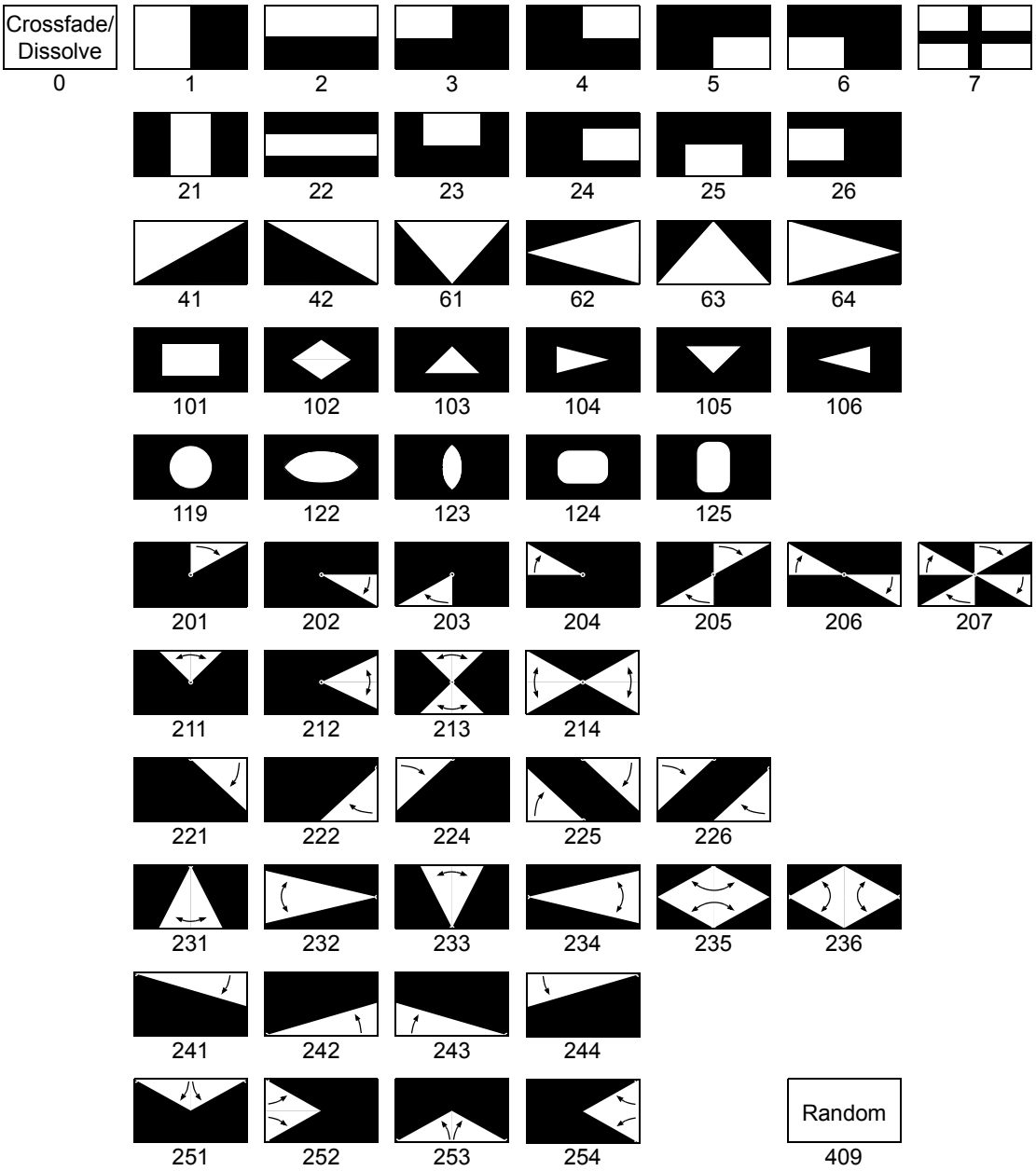


Figure 6-31: SMPTE wipes of CLIPSTER

After selecting one of the wipes you have further possibilities at hand to adjust the transition. For this use the following items of the **'Transition Operator configuration'** window:

Item	Description
Softness	Use the **Softness** slider and the percentage value to its right to adjust the softness (feathering) of the wipe. Then the edges of the emerging image appear softer so that they blend into the receding image with less contrast. With the slider you can set the softness value to values between 0 and 100%. However, with the percentage value to the right of the slider you can select even greater values than 100%: Either enter the softness (in percent) manually or use the controls to the right of the entry field to step the value up or down until it is set as desired.
Start	The **Start** entry field indicates in percent the starting point of the transition. If adjusted, the operator will begin the transition at a later point of its phases to blend into the receding image. If this value is greater than the value set in the **End** entry field, the transition effect will be reversed, i.e. a change will appear towards the (increasing) black area (see graphics in figure 6-31 on page 6-35).
	This button transfers the value set in the **End** entry field to the **Start** entry field (from right to left).
	This button exchanges the values between the **End** and **Start** entry fields. The value of the **End** entry field will be transferred to the **Start** entry field and vice versa.
	With this button you can transfer the value set in the **Start** entry field to the **End** entry field (from left to right).

Item	Description
End	The **End** entry field indicates in percent the ending point of the transition. If adjusted, the operator will conclude the transition at an earlier point of its phases to blend into the receding image. If this value is less than the value set in the **Start** entry field, the transition effect will be reversed, i.e. a change will appear towards the (increasing) black area (see graphics in figure 6-31 on page 6-35).
Preview	The **Preview** scrub bar enables you to preview the transition on the video overlay in the control area of the CLIPSTER Edit Tool. Select the scrub bar cursor with the mouse and move it to the left or right to view the effect of the transition.

- Once everything is set as desired, confirm your selection with the **OK** button.

After the confirmation the settings for the transition between the two clips are in effect. You can then, for example, review it with the button **REVIEW** of the controls (see section “Controls” on page 5-5).

The length of the transition can be changed the same way you change in- and outpoint of clips in the timeline. This procedure is described in section “How to Change In-/Outpoints in the Timeline” on page 6-40.

6.4.7 Prerendering of Timeline Elements

Depending on the resolution of the material and the type of operators used in the timeline, a prerendering may be necessary prior to a play-out. Fact is, the greater the resolution of the material in the timeline the more likely is the chance that a prerendering is required. Then CLIPSTER may not be able to handle the respective clip or operator in real time.

A prerendering may be indicated for all types of timeline elements, i.e. clips as well as embedded operators (e.g. transitions). If any exceed the real-time capability of CLIPSTER, they will be marked for a prerendering. Further information about the real-time capability of clips can be found in section “Real-time Capability of Clips” on page 4-12.

The prerendering of timeline elements means that the CLIPSTER Edit Tool calculates the timeline elements before a play-out takes place and stores the calculated extra files (images) in a temporary location on the video hard disk. These are then used for a play-out instead of the original material in the timeline.

It is best to handle and administer the temporary data project specific, meaning for each project in a different temporary storage location. Further information about this can be found in section “Notes on Project Management” on page 2-9.

A part of the timeline that has to be prerendered before a play-out will be displayed with a yellow line in the indicator line of the timeline scale:

Whether the CLIPSTER Edit Tool marks a timeline element for prerendering, is defined by a setting in the Configuration Tool of the CLIPSTER software. More information about this can be found in the “CLIPSTER Configurations” user guide.

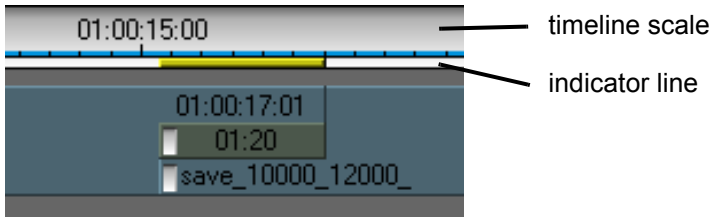


Figure 6-32: Timeline element marked for prerendering

With a click of the mouse on the yellow line you can start the prerendering process. For more information about the prerendering process

in general see section “Notes on Project Management” on page 2-9 and section “Prerender all” on page 7-16.

A changing of the video format will set all already prerendered parts of the timeline back to the ’need to be prerendered’ state, i.e. the yellow line in the indicator line will appear again.

After a prerendering save your project file. If an already saved project file is not saved after a prerendering process again, the prerendered files will not be recognized by the CLIPSTER Edit Tool when the project file is loaded once more: Neither will they be used for a play-out nor will they be deleted via the ***Clean temp dir*** menu option. They have to be deleted manually (as described in section “Cleaning the Temporary Data Manually” on page A-10).

Also related to the prerendering of files are the ***Prerender all*** and ***Clean temp dir*** menu options on the menu ***Project*** (see section “Prerender all” on page 7-16 and section “Clean temp dir” on page 7-17).

6.4.8 Changing the In- and Outpoints of Clips

Usually, before a clip is added to the timeline you adjust its in- and outpoint via the master mode of the CLIPSTER Edit Tool (see section “The Master Mode” on page 5-9). However, after clips are added to the timeline you still have the possibility to change their in- and outpoint.

There are two ways to change the in- and outpoint of clips already added to the timeline:

1. You can change the in- and outpoint of adjacent clips to a cutting point via the trim mode of the CLIPSTER Edit Tool, or
2. you can change the in- and outpoints manually in its timeline track.

Both procedures are detailed in this section.

While the trim mode is used for video material only, the changing of in- and outpoints in the timeline tracks can be used for all timeline elements, i.e. video clips, audio clips and embedded operators (e.g transitions).

For a frame accurate trimming of the in- and outpoints you may also use the appropriate keyboard shortcuts, such as [M]/[/] (trim by ten frames) and [,]/[.] (trim by one frame), after the selection of the in-/outpoint handler (see also section “Keyboard Shortcuts” on page A-3). They can be used in the trim mode of the control area as well as in the timeline of the CLIPSTER Edit Tool.

How to Change In-/Outpoints with the Trim Mode

With the trim mode of the CLIPSTER Edit Tool you can change the in- and outpoint of adjacent video clips to a cutting point. You can activate the trim mode with its button from the controls of the CLIPSTER Edit Tool (, see section “Controls” on page 5-5).

When the trim mode is activated, the CLIPSTER Edit Tool will automatically jump to the nearest cutting point in the video track(s) and the timeline cursor will be positioned accordingly. Furthermore, the control area then displays two video overlays. The left one shows the last frame of the clip left to the cut while the right one displays the inpoint and first frame of the clip to the right. You can then use the trim mode to change the in- and outpoint easily.

- Select the in-/outpoint handler in the scrub bar below each video overlay with the mouse and move it to the desired position for the respective clip.

  For a frame accurate trimming you may also use the controls below the two overlays (see section “The Trim Controls” on page 5-17).

  You cannot change the in-/outpoint beyond the limits of the original material on the video hard disks.

Your alterations will be effective immediately in the timeline. After changing the settings of the handlers you can, for example, define a transition between the clips or perform a play-out.

More information about the trim mode and how to adjust in- and outpoint in this mode can be found in section “The Trim Mode” on page 5-16.

How to Change In-/Outpoints in the Timeline

You can change in- and outpoints of clips already added to the timeline in their timeline tracks. For this perform the following:

- Select from the clip's representation its in- or outpoint handler and move it to the right or to the left to extend or reduce the clip's length in the timeline.

You cannot change in- and outpoints beyond the limits of the original material on the video hard disks.

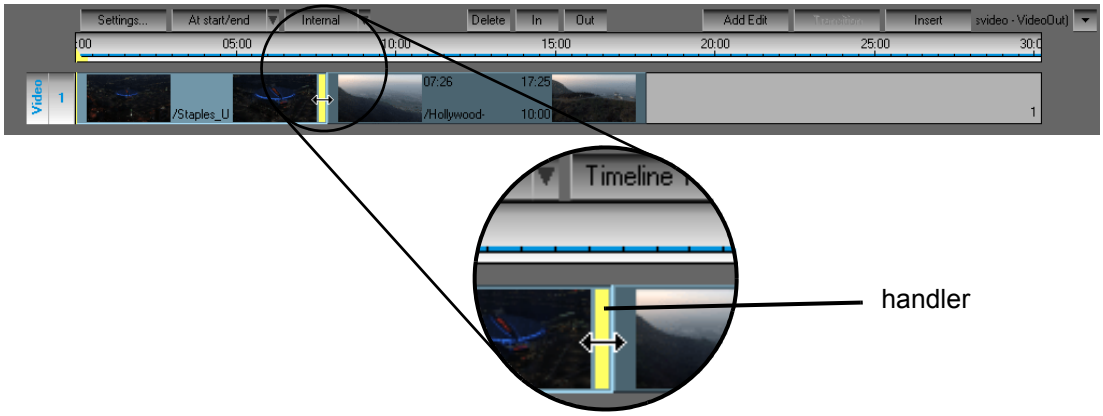


Figure 6-33: Changing of in- or outpoint

This will change the in- or outpoint of the clip accordingly.

This procedure can be used for all timeline elements, i.e. video clips, audio clips and embedded operators (e.g. transitions). To adjust their length in the timeline simply select their in-/outpoint handler and move it to the right or left of the timeline. The following figure shows, for example, how to change the length of a transition:

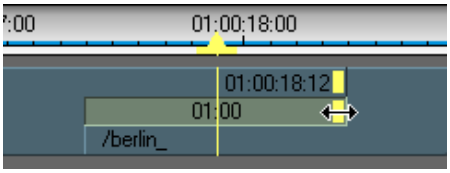


Figure 6-34: Changing the length of a transition

As long as the insert mode of the CLIPSTER Edit Tool is active, the subsequent clips and embedded operators will automatically adjust their positions on the timeline respectively. When the CLIPSTER Edit Tool is set to the overwrite mode, clips and embedded operators may get deleted from the timeline or gaps may occur in the timeline. More information on this can be found in section “The Insert/Overwrite Mode of the Timeline” on page 6-26.

The in- or outpoint handler will react to certain elements of the timeline (snapping mode of the CLIPSTER Edit Tool) to allow for an automated positioning. You can deactivate the snapping mode and activate a fine tuning mode by pressing the [Shift] key. Further information about the snapping mode can be found in section “Moving Clips within the Timeline” on page 6-29.

During the positioning of the in- or outpoint handler of clips you can see a representation of the length of the clip in its timeline track of the CLIPSTER Edit Tool. The blue line right above the clip shows its original length:

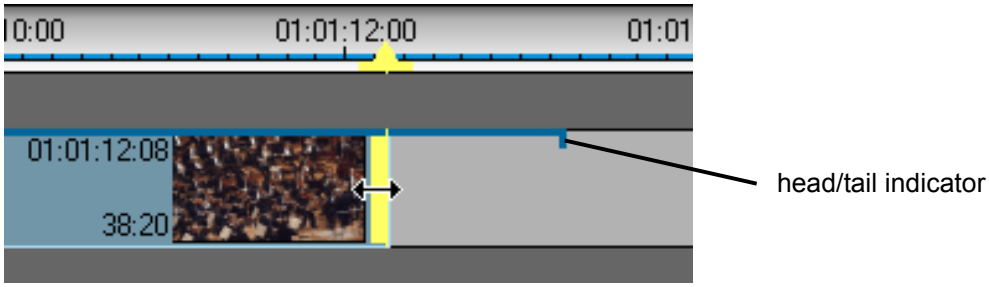


Figure 6-35: Display of original length of clip

With this you can easily determine whether and how much head or tail is available to, for example, create a transition.

6.4.9 Advanced Trimming

The advanced trimming features of the CLIPSTER Edit Tool work the same way as the changing of in- and outpoints of clips already added to the timeline (see section “How to Change In-/Outpoints in the Timeline” on page 6-40). They are available when you select two or more in- or outpoint handlers of timeline elements present in the timeline.

This procedure can be used for all timeline elements, i.e. video clips, audio clips and embedded operators (e.g. transitions).

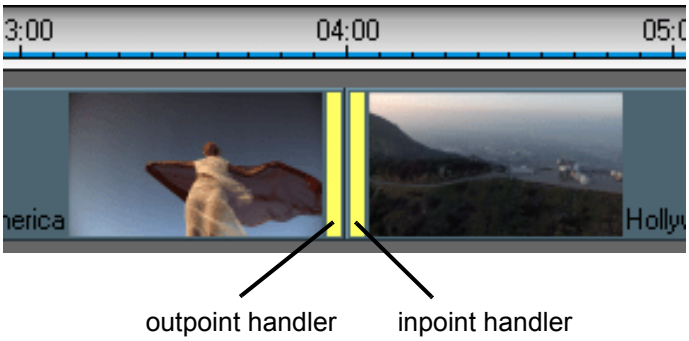


Figure 6-36: In- and outpoint handlers selected

To select more than one handler perform the following:

- Select one of the desired handlers with a click of the mouse.
- Hold down the [Ctrl] key while clicking on another desired handler with the mouse.
  Perform this step for as many additional handlers as you want.

After that you can click on one of the handlers and drag it to another position. The rest of the selected handlers will act accordingly.

As long as the insert mode of the CLIPSTER Edit Tool is active, the subsequent clips and embedded operators will automatically adjust their positions on the timeline respectively. When the CLIPSTER Edit Tool is set to the overwrite mode, clips and embedded operators may get deleted from the timeline or gaps may occur in the timeline. More information on this can be found in section “The Insert/Overwrite Mode of the Timeline” on page 6-26.

To trim several in- or outpoint handlers there must be enough head and tail available, otherwise a trimming will not be possible.

For a frame accurate trimming of the in- and outpoints you may also use the appropriate keyboard shortcuts, such as [M]/[/] (trim by ten frames) and [,]/[.] (trim by one frame), after the selection of the in-/outpoint handler (see also section “Keyboard Shortcuts” on page A-3).

With the selection of more than one handler of timeline elements you have some advanced possibilities for trimming at hand:

– If you select the outpoint handler of one clip and the inpoint handler of the neighboring clip to the right (as can be seen in figure 6-36 on page 6-43), you can extend the length of one clip while shortening the length of the other at the same time. Thus the timeline length will be maintained.

Figure 6-37: Selected in- and outpoint handlers of neighboring clips

– If you select either two outpoint handlers or two inpoint handlers, you can adjust the length of the two clips simultaneously.

Figure 6-38: Two selected outpoint handlers

The following two trimming techniques are called the slip and slide trimming. These are two sophisticated trimming techniques which can be used for a frame accurate moving of in- and outpoints of clips while maintaining the length and duration of the timeline:

– Slide trimming: When you select one out- and one inpoint handler and thereby enclose another clip, you can change the out- and inpoint of the two clips while the enclosed clip is fully maintained, in its length as well as in its contents. This way you can alter the position of the enclosed clip while the timeline length remains constant.

slide trimming:

Figure 6-39: Enclosing a clip by selecting in-/outpoint handlers of neighboring clips

– Slip trimming: When you select the in- and outpoint handlers of one clip alone, you can change its in- and outpoint simultaneously. This will change the contents of the clip only. The length of the clip, its position and the length of the timeline is preserved.

slip trimming:

Figure 6-40: Changing the contents of a clip

6.4.10 Marking Positions in the Timeline

To mark certain positions in the timeline, e.g. to cut the clip at this position at a later stage or other reasons, you can place timeline markers in the timeline of the CLIPSTER Edit Tool. For this call up the context menu of the timeline scale (usually invoked with a right-click of the mouse) and select the menu option ***Add Marker***:

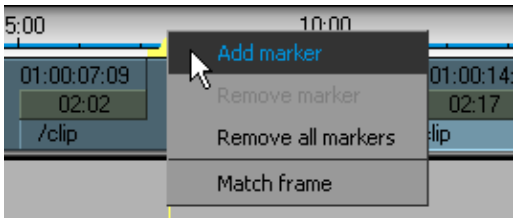


Figure 6-41: Placing a marker at the position of the timeline cursor

This will add a marker to the timeline of the CLIPSTER Edit Tool at the current position of the timeline cursor. Once the marker is in place, you can easily jump to it with the respective controls ( ) of the control area of the CLIPSTER Edit Tool and perform the task that you wanted to do at this position.

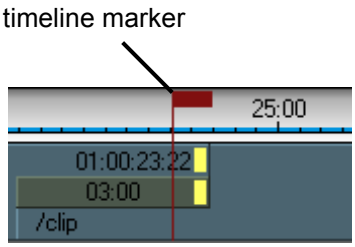


Figure 6-42: Timeline marker in timeline

The timeline markers are also useful when drops occurred during a real-time operation of CLIPSTER. Then you can easily mark the approximate locations of the drops with timeline markers via the performance monitor of CLIPSTER (see section “The Performance Monitor” on page 4-20).

To delete a marker from the timeline jump with the timeline cursor to the respective timeline marker that you want to delete or place it manually on its position and call up the context menu. Afterwards select the menu option ***Remove marker*** to delete it from the timeline.

You also have the possibility at hand to remove all timeline markers in one step from the timeline. For this select the menu option ***Remove all markers*** from the context menu.

The appearance of timeline markers can be configured to your liking with the Configuration Tool of CLIPSTER (see “CLIPSTER Configurations” user guide).

6.4.11 Attaching an Audio Clip to a Video Clip

Sometimes during your editing work you may want to group audio and video clips, for instance, if they are already perfectly aligned and in synchronization. For this the timeline provides the possibility to attach an audio to a video clip.

When attaching more than two timeline elements, you can attach one video clip to several audio clips only. It is not possible to attach several video clips to one or more audio clips. Furthermore, it is not possible to attach clips of one type only, e.g. audio clips only.

How to Attach Clips

To attach an audio clip to a video clip perform the following:

- Select a video clip and an audio clip in the timeline with the mouse while you hold down the [Ctrl] key.
- Afterwards release the [Ctrl] key and call up on one of the selected clips or on an empty part of the timeline the context menu (usually, with a right-click of the mouse).
- On the context menu select the menu option ***Attach***.

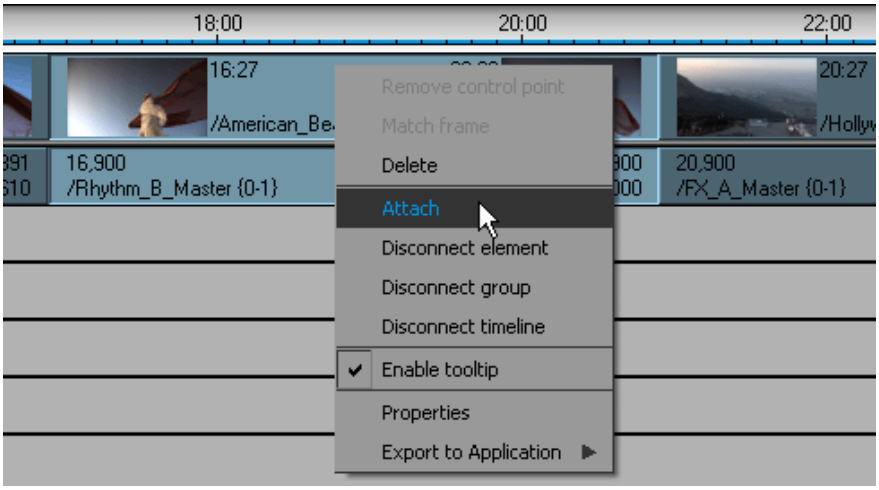


Figure 6-43: Attaching audio and video clip

Once this is done, the audio clip will be attached to the selected video clip. Now, if one of these clips is selected in the timeline, the attached one will be selected as well and they can then, for example, be moved easily together while their alignment and position to each other is maintained.

However, because attached clips can only be used in the overwrite mode of the CLIPSTER Edit Tool, once clips are attached in the time-

line of the CLIPSTER Edit Tool, the software switches on the overwrite mode automatically.

When working with attached clips in the timeline, you cannot switch to the insert mode anymore. The button to switch between the two different modes appears dimmed and is no longer available. Further information about the insert and overwrite mode can be found in section “The Insert/Overwrite Mode of the Timeline” on page 6-26.

To activate the insert mode of the CLIPSTER software all timeline elements have to be disconnected.

How to Disconnect Attached Clips

To sever an attachment of clips or to switch back to the insert mode of the CLIPSTER software you have to disconnect the attached clips:

- Select the attached clips and call up its context menu (usually, with a right-click of the mouse).
- Then use either one of the following menu options:

Disconnect element	Disconnects and severs the attachment of the selected clips.
Disconnect group	Disconnects and severs the attachment of the selected clips.
Disconnect timeline	Disconnects and severs the attachment of all attached timeline elements in the timeline in one step.

After that the attached clips will be severed and disconnected. When the timeline does not contain other attached clips, the button for the insert mode will be available and can be selected again.

6.5 Working with Video Clips

The CLIPSTER Edit Tool works with representations of clips in the timeline only. This means that while you perform your work on the timeline the original material on the video hard disks is maintained and never altered.

The appearance of the clips in the video track(s) of the timeline can be altered in several ways: You can change the height of the track(s) and the display of the thumbnails. You can also display an unlimited number of video tracks for a vertical editing in the timeline. For more information about all this please refer to section “Changing the Layout of the Timeline Area” on page 6-5.

This section describes several features of video clips added to the video track(s) of the timeline of the CLIPSTER Edit Tool as well as how to perform a vertical editing with video clips in the timeline.

6.5.1 The Clip’s Information

The video clips in the video track(s) of the timeline provide several information via their text display.

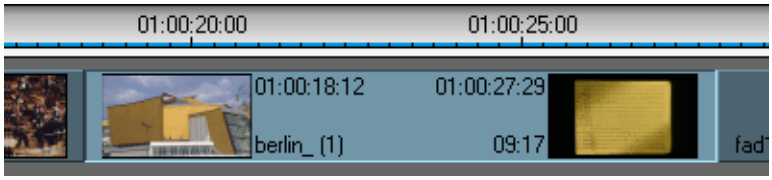


Figure 6-44: Representation of video clip

The following information are provided:

top left — Usually, the exact inpoint of the clip on the timeline

The values as well as the notation of this field depend on the display setting for the timeline (timecode vs. frames notation, see “CLIPSTER Configurations” user guide) and on the display type setting of the timeline (see section “Changing the Display Type” on page 6-9).

top right — Usually, the exact outpoint of the last frame of the clip on timeline

The values as well as the notation of this field depend on the display setting for the timeline (timecode/frames notation, see "CLIPSTER Configurations" user guide) and on the display type setting of the timeline (see section "Changing the Display Type" on page 6-9).

bottom left — Name of the clip as it is available in the bin together with its folder path

bottom right — Length/duration of the clip

You can receive additional information about the clips via their tooltips which can be customized to your needs (see section "Configuring the Tooltips of Clips" on page 6-8 for further information).

6.5.2 The Context Menu of Video Clips

The context menu of the video clips (usually invoked with a right-click of the mouse) provides the following menu options and functions:

Match frame — If you want to know the exact position of an individual frame in the source material of the video clip or transfer this image (or the complete image sequence) to another application for further processing, you can select the menu option ***Match frame***. Then the control area of the CLIPSTER Edit Tool switches to its master mode where the frame currently selected via the timeline cursor together with its clip will be made available. After this you can easily recognize the exact frame position in its source material via the **Position** field because the scrub bar cursor will be placed in the scrub bar of the clip accordingly (see section "The Master Mode" on page 5-9). Further information about this feature can be found in section "Matching an Individual Video Frame" on page 6-52.

The ***Match frame*** menu option can also be found on the context menu of the timeline scale.

Delete

This menu option deletes the respective clip where the context menu was invoked from the timeline.

You may also select the clip and press the [Del] key on you keyboard to delete a clip from the timeline.

Attach

Disconnect element

Disconnect group

Disconnect timeline

These menu options enable you to work with attached clips: Sometimes during your editing work you may want to group audio and video clips, for example, if they are already perfectly aligned and in synchronization. For this the timeline provides the possibility to attach an audio to a video clip. Further information about how to work with attached clips and how to use these menu options can be found in section “Attaching an Audio Clip to a Video Clip” on page 6-46.

Enable tooltip

Clips added to the timeline of the CLIPSTER Edit Tool provide various information via tooltips. With this menu option you can activate or deactivate the display of the tooltips when the mouse cursor is placed over a clip in the timeline area. If it is activated, the menu option will show a checked comma in front. Additional information about the tooltips can be found in section “Configuring the Tooltips of Clips” on page 6-8.

The information displayed via the tooltips can be adjusted freely with the Configuration Tool of CLIPSTER. Additionally, the tooltips can also be enabled or disabled there (see “CLIPSTER Configurations” user guide).

Properties

With this menu option you can call up the timeline properties of the clip where the context menu was invoked. In the **’Timeline element properties’** window you can, for example, adjust zooming and panning or set color/gamma corrections for the respective clip. This is in more detail described in section “Timeline Properties of Clips” on page 6-63.

Export to Application

When a clip is present in a video track of the timeline area, you can process its source material with a third party application of your choice either by using the original data directly (destructive export) or by previously copying the material beforehand. Afterwards you can use it again in the CLIPSTER software without any difficulty. Further information about this can be found in section “Processing the Source Material of a Video Clip” on page 6-53.

6.5.3 Consistencies of Clips

During the loading of a project file or the import of a bin (see section “Open…” on page 7-4 and section “Import Bin…” on page 7-21), video clips are checked for inconsistencies: It is tested whether the first and the last frame of each video clip is available on the video hard disks. However, frames missing in-between the first and the last frame are not verified automatically.

If a clip is played out where frames are missing, the missing frames will be substituted by the CLIPSTER Edit Tool automatically with a standard image:

Figure 6-45: Substituted image for a missing frame

Then it is best to check your bin and thus your timeline for inconsistencies more thoroughly with the menu option ***Check Bin*** on the ***Bin*** menu (see section “Check Bin” on page 7-22). This menu option will provide you with a list of the clips where frames are missing. After that either the whole clip or the missing frames should be replaced or recorded anew.

6.5.4 Matching an Individual Video Frame

The matching of an individual video frame is especially useful in case you want to know the exact position of this frame in the source material of the clip or if you want to transfer this image (or the connected image sequence) to another application for further processing. Once the timeline cursor is placed on a specific image of a video clip in the timeline, you can select the menu option ***Match frame*** from the context menu of the video clip (usually invoked with a right-click of the mouse).

The ***Match frame*** menu option can also be found on the context menu of the timeline scale.

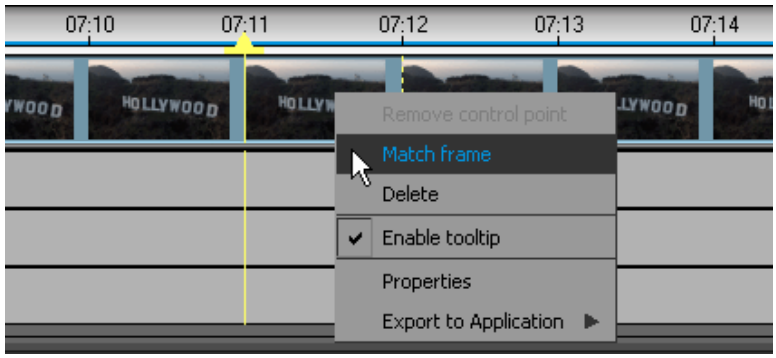


Figure 6-46: Matching an individual video frame

After this the control area of the CLIPSTER Edit Tool switches to its master mode and the particular frame together with its clip will be made available in the video overlay to the left of this mode:

Figure 6-47: The matched frame

Then you can easily recognize the exact frame position in its source material via the **Position** field to the right because the scrub bar cursor will be placed accordingly.

Further information about the master mode can be found in section “The Master Mode” on page 5-9.

Additionally, you can now transfer the selected image (or the complete image sequence) to another application for further processing with the menu option ***Export to Application*** of the ***Project*** menu (see section “Export to Application” on page 7-18).

To switch the control area back to its edit mode use the appropriate button of the control area ( ).

6.5.5 Processing the Source Material of a Video Clip

The CLIPSTER Edit Tool provides two ways to export either the original source material or a copied version of it to a third party application of your choice: You can export video data visible in the master mode of the CLIPSTER Edit Tool, or you can export video data that is available in the timeline to another application. This way you can process the source material of a video clip further and afterwards use it again in the CLIPSTER software without any difficulty. This section describes how to process source material when a video clip was already added to the timeline of the CLIPSTER Edit Tool.

The export of source material that is visible in the master mode of the CLIPSTER Edit Tool is described in section “Export to Application” on page 7-18.

When a clip is present in a video track of the timeline area, you can process its source material either by using the original data directly (destructive export) or by previously copying the material beforehand. To do this you have to use the menu option ***Export to Application*** of the context menu of a video clip in the timeline of the CLIPSTER Edit Tool. It opens a submenu where you can select other applications than the CLIPSTER software to process your video data.

To have an application available in this submenu you have to define and set it first. This can be done with the Configuration Tool of CLIPSTER (group **External**, see “CLIPSTER Configurations” user guide). Please note that you have to set the appropriate program parameters, if applicable, in the **Options** entry field as well.

Note that when the **Destructive export** option is enabled in the Configuration Tool, the source data will be directly processed with all specified external applications. If you save the data in such a case with the external application, the source material will be overwritten.

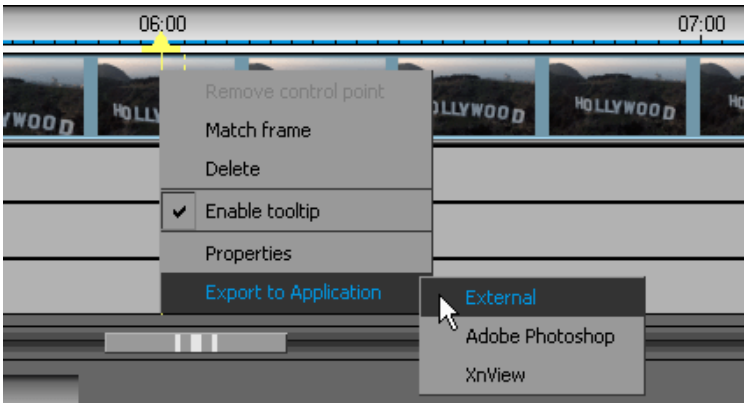


Figure 6-48: Accessing an external application

This menu option will export the source material of the clip according to your settings made for this application in the Configuration Tool of CLIPSTER.

For a detailed description of the settings see “CLIPSTER Configurations” user guide.

When a sequence processing is enabled, each frame between a set in- and outpoint will be sent to the external application. However, this applies to a single clip only: If the in- and outpoint are set outside of the clip where the menu option ***Export to Application*** was called, only the image sequence of the clip where the menu option was called will be sent.

If a non-destructive export is selected for the external applications, the source material of the clip will be copied to the same path and location where the original material is stored with an incrementing number added to the directory name of the clip (*<name of clip's directory><incrementing number>*). After this the copied source material will be opened in the external application where you can process it. In the meantime the clip's representation in the timeline of the CLIPSTER Edit Tool will be changed to the location of the copied material, i.e. you will receive a new bin clip as well as a changed representation in the video track of the timeline. As soon as you have processed the material with the other application and saved it, you can use it immediately in CLIPSTER without having overwritten the original source.

When a destructive export is selected for the external applications, no changes will be applied to the clip's representation in the CLIPSTER Edit Tool. The source material is sent directly to the external application where it can be processed. Once the changes are saved, the material can be immediately accessed with CLIPSTER. However, due to the destructive export, your original source material on the video hard disk array will be lost.

6.5.6 Vertical Editing of Video Clips in the Timeline

With the CLIPSTER Edit Tool and the timeline area configured to several video tracks you can perform a vertical editing in the timeline.

To perform a vertical editing the timeline area has to be configured to contain more than just one video track. This can be performed with the video track size options of the **'Output settings'** window (click on the button **SETTINGS** in the timeline area, see section "Video and Audio Track Properties" on page 6-6).

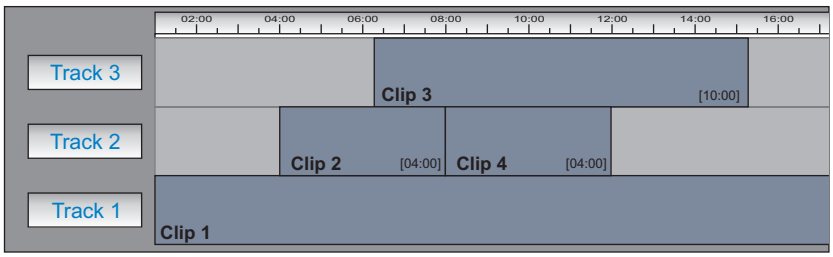
The approach to work with several video tracks vertically in the timeline is different from the usual one of a horizontal editing in a timeline. Then the various tracks of the timeline form a stack: By placing different or differently edited timeline elements in other video tracks at the same position in the timeline you can change the contents for a play-out at that position easily.

With vertical editing you still work with the video track(s) the usual way, i.e. horizontally. But, for instance, in case you want to realize a temporary cutaway or you want to evaluate the visual outcome of different shots at a particular position in the timeline, simply place the respective timeline elements in another track in the timeline. The higher the track number the more priority is given to the respective track during a play-out.

Then, with the help of enabling or disabling the respective tracks (see section "Enabling or Disabling Tracks" on page 6-28) you can easily determine the best possible solution for your work.

Example 1:

In the example below the timeline is configured to three video tracks. All three tracks are enabled, i.e. all tracks will be played out.

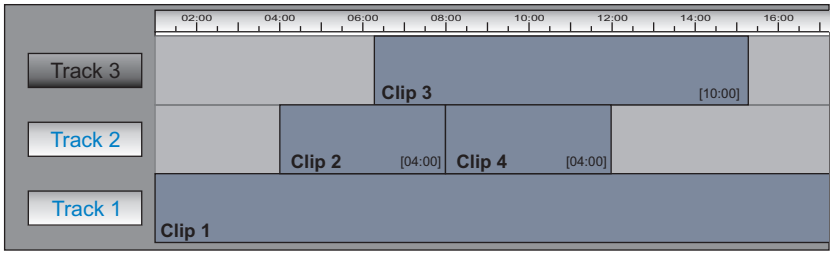


When a play-out is initiated, the result will be that clip #3 overlays all others below it, i.e. the ones with a lower priority.

Play-out Result:

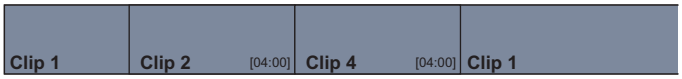
Example 2:

In the second example the third track is now disabled.



When a play-out is initiated, this will lead to an output where clip #3 is not given out at all while the clips #2 and #4 overlay the clip #1 present in the first video track (the one with the lowest priority).

Play-out Result:



The display of the video tracks can be reversed via the Configuration Tool of CLIPSTER (see “CLIPSTER Configurations” user guide for more information). However, this does not affect the play-out priority, i.e. the priority of the video track with the highest number over all others when enabled.

CLIPSTER is able to autoconform offline composed projects into different video tracks via the CLIPSTER I/O Tool (see “CLIPSTER I/O Tool” user guide for more information). Thus, with the help of the vertical editing feature of CLIPSTER you can compare different versions of conformed projects easily in the timeline. For an even better control of the conformed master you can add the offline version of the project to a different video track.

6.6 Working with Audio Clips

With audio clips it is the same as with video clips: The CLIPSTER Edit Tool works with representations of clips in the timeline only. Throughout your work in the Edit Tool the original material on the video hard disks is maintained and never altered.

The timeline area may contain up to 99 audio tracks where you can add audio clips in the desired sequence, set fade-ins and -outs and control the volume of each clip.

The number of audio tracks displayed in the CLIPSTER Edit Tool can be set freely (see section “Video and Audio Track Properties” on page 6-6).

To get a proper output you have to configure the audio hardware output accordingly (see section “How to Configure the Audio Output” on page 6-12).

CLIPSTER supports audio files with multiple mono or stereo channels. If you drag such a clip from the bin to the timeline, the additional channels will be added to the other audio tracks below the selected one.

This section describes several features of audio clips added to the audio tracks of the timeline of the CLIPSTER Edit Tool.

6.6.1 The Clip’s Information

Audio clips in the audio tracks of the timeline provide several information via their text display.

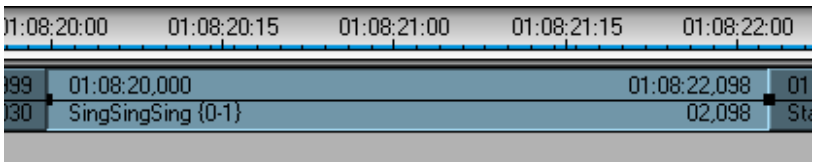


Figure 6-49: Representation of audio clip

The following information are provided:

top left	Exact inpoint of clip on the timeline; with the timecode view of the timeline activated, the seconds and frames will be shown as seconds in a decimal number, i.e. with milliseconds; when the frame view is activated, the inpoint will be displayed in milliseconds only

top right	Exact outpoint of the clip on the timeline (minus the duration of one frame); with the timecode view of the timeline activated, the seconds and frames will be shown as seconds in a decimal number, i.e. with milliseconds; when the frame view is activated, the outpoint will be displayed in milliseconds only
bottom left	Name of the clip as it is available in the bin together with its folder path; in curly brackets the audio channels (streams) of the clip indicating its audio mode, e.g. `0-1` meaning a stereo stream of channel `0` and `1`, or `0-0` meaning a mono stream of channel `0`
bottom right	Length/duration of the clip

The audio mode of the clip can be changed in its clip properties (bin). For this the clip must not be present in the timeline of the Edit Tool.

With the display type set to `File number`, the in- and outpoint information of the clips will provide the in- and outpoint with regard to the single audio file only (in milliseconds), i.e. untrimmed each audio clip in the timeline will begin with zero and end with its total duration (see also section “Changing the Display Type” on page 6-9).

You can receive additional information about the clips via their tooltips which can be customized to your needs (see section “Configuring the Tooltips of Clips” on page 6-8 for further information).

6.6.2 The Context Menu of Audio Clips

The context menu of the audio clips (usually invoked with a right-click of the mouse) provides the following menu options and functions:

Remove control point	With this menu option you can delete a volume control point that was set on the volume control line (see section “Volume Control” on page 6-59).
Delete	This menu option deletes the respective clip where the context menu was invoked from the timeline.

You may also select the clip and press the [Del] key on you keyboard to delete a clip from the timeline.

Attach
Disconnect element
Disconnect group
Disconnect timeline

These menu options enable you to work with attached clips: Sometimes during your editing work you may want to group audio and video clips, for example, if they are already perfectly aligned and in synchronization. For this the timeline provides the possibility to attach an audio to a video clip. Further information about how to work with attached clips and how to use these menu options can be found in section “Attaching an Audio Clip to a Video Clip” on page 6-46.

Enable tooltip

Clips added to the timeline of the CLIPSTER Edit Tool provide various information via tooltips. With this menu option you can activate or deactivate the display of the tooltips when the mouse cursor is placed over a clip in the timeline area. If it is activated, the menu option will show a checked comma in front. Additional information about the tooltips can be found in section “Configuring the Tooltips of Clips” on page 6-8.

The information displayed via the tooltips can be adjusted freely with the Configuration Tool of CLIPSTER. Additionally, the tooltips can also be enabled or disabled there (see “CLIPSTER Configurations” user guide).

6.6.3 Volume Control

The button **VOLUME** is important for audio clips. You can find it at the bottom of the timeline area to the left of the sliders to change the timeline’s view. This button displays or hides the volume control lines of the audio clips.

With the volume control lines you can change the volume for each clip separately. If the button **VOLUME** is in its active state, the volume control lines are visible.

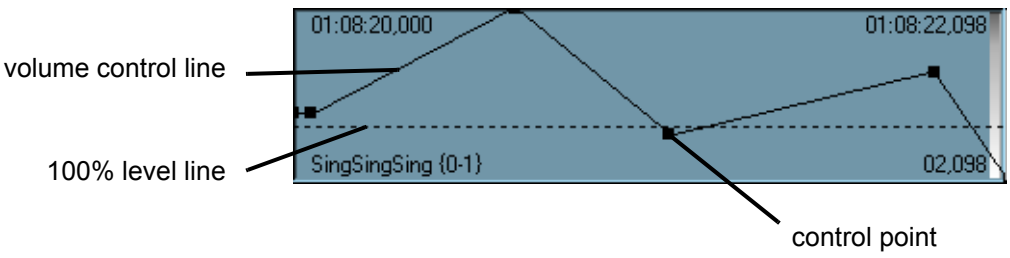


Figure 6-50: Volume control of audio

After dragging an audio clip to one of the audio tracks from the bin, the whole volume control line is set to 100% (as shown in figure 6-49 on page 6-57). In this state there are two volume control points available, one at the beginning of the clip and one at its end. To tune the audio volume up or down you have to either use the already available volume control points or create a new one. To create a new volume control point perform the following:

- Move the mouse cursor horizontally on the volume control line to the location where the control point should be added. As soon as you can add a control point, the mouse cursor changes to a cross.
- Then click with the mouse.

This will create a control point which can be moved in every direction on the audio clip.

The control points react to certain elements in the video and audio tracks of the timeline (snapping mode of the CLIPSTER Edit Tool) to allow for an automated positioning. You can deactivate the snapping mode and activate a fine tuning mode by pressing the [Shift] key. Further information about the snapping mode can be found in section “Moving Clips within the Timeline” on page 6-29.

To delete a control point select from its context menu the menu option ***Remove control point*** (see also section “The Context Menu of Audio Clips” on page 6-58).

When you move the control point up or down, you can turn up or down the volume of the respective clip.

If you want to create audio peaks or fade-in or -out audio, you have to create more than one control point and set them accordingly. There is no limit in the total number of control points and new ones can be created as described above.

As an example, the following figure shows an audio project with control points set to create fades:

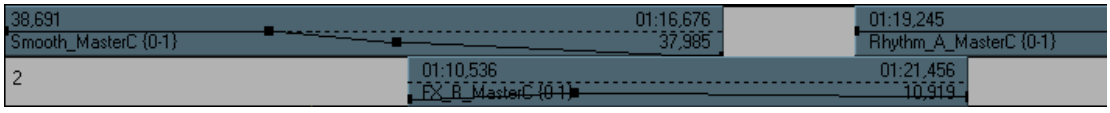


Figure 6-51: Fades achieved with the CLIPSTER Edit Tool

To control the setting of a control point the CLIPSTER Edit Tool shows you its current volume level in decibel via a tooltip. Simply move the mouse cursor over a control point to view its setting:

Figure 6-52: Decibel setting of control point

The decibel scale of the CLIPSTER Edit Tool is as follows:

Decibel Indicator	Loudness (in %)
-12 dB	25%
-6 dB	50%
0.0 dB	100%
6 dB	200%
12 dB	400%

While a totally decreased control point means that audio is muted, a fully increased one does not necessarily mean that audio is set to 200%. You can move a control point beyond the limits of the audio clip which will increase the volume over 200%. This will be indicated then by a shifted 100% level line: it is then located in the lower half of the audio clip.

6.6.4 Wave Form Display

With the button **WAVE** you can switch on or off the waveform display of the audio clips in the timeline of the CLIPSTER Edit Tool. You can find it at the bottom of the timeline area to the left of the sliders that change the timeline's view, directly to the right of the button **VOLUME**.

A waveform is a graphical representation of an audio signal and the **WAVE** button displays or hides the wave forms of the audio clips:

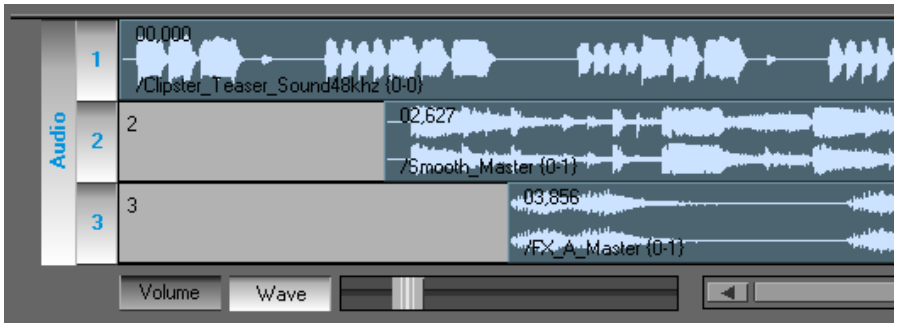


Figure 6-53: Audio waveforms

For each channel available in the respective audio clip one waveform will be displayed, i.e. a mono clip provides one waveform only whereas a stereo clip shows two waveforms, one for each channel.

The appearance of the waveforms can be configured to your liking with the Configuration Tool of CLIPSTER (see “CLIPSTER Configurations” user guide).

6.7 Timeline Properties of Clips

Every video clip added to the timeline provides timeline element properties which offer additional editing features for your video processing tasks. These editing features are available in the form of operators. Depending on the configuration of the CLIPSTER video system and the optional features installed, there may be numerous operators available that enhance the editing functionality of CLIPSTER.

These operators can be programmed as plug-ins by anyone who wants to have special editing operators for their work via the freely available CLIPSTER Software Development Kit.

If you know how to develop software via C++ and you want to write special editing operators of your own, you can receive the CLIPSTER Software Development Kit and further information about this from the DVS service department.

Once the operators are installed with the special and easy to handle plug-in interface of CLIPSTER, they can be accessed in the window of the timeline element properties the same way as the standard operators described in this section.

As a developer of CLIPSTER operators itself, DVS offers for CLIPSTER optionally available operators as well as already included ones in every CLIPSTER software delivery (default installment). The operators offered by DVS are as follows:

Operator	Installment	Description
Zoom + Pan	default	This operator allows, for example, to set zooming and/or panning for the video clip in the timeline. It is by default available for all clips in the timeline.
Flip/Flop	default	The flip/flop operator enables you to mirror the video image vertically and/or horizontally.
Color Correction	default	With this operator you can assign a static look-up table (LUT) to the clip and thus perform a color and/or gamma correction.
Color Correction (enhanced)	optional	If you have purchased this feature, the default color correction operator will be supplemented by additional color correction controls. With them you can perform a primary color/ gamma correction to the clips in the timeline.

Usually, the operators are applied to single clips on the timeline only but their settings can be transferred to other clips or areas of the timeline without any effort.

This section explains in detail how to access and set the properties for a clip. Additionally, all possibilities of the timeline element properties window will be described, followed by a description of the operators offered by DVS and available for CLIPSTER.

Some of the optionally available operators of the CLIPSTER software were developed by third parties. If you have purchased these with your CLIPSTER, a description of them will be provided via an extra documentation which will be included in the delivery of CLIPSTER.

6.7.1 Opening the Properties Window

To set operators and thus properties for a clip in the timeline you have to call up the **'Timeline element properties'** window first. For this perform the following:

- Select the desired clip in the timeline and invoke its context menu (see section "The Context Menu of Video Clips" on page 6-49).
- On the context menu select the menu option ***Properties***.

Alternatively, you may also double-click the clip in the video track of the timeline.

This will open the **'Timeline element properties'** window:

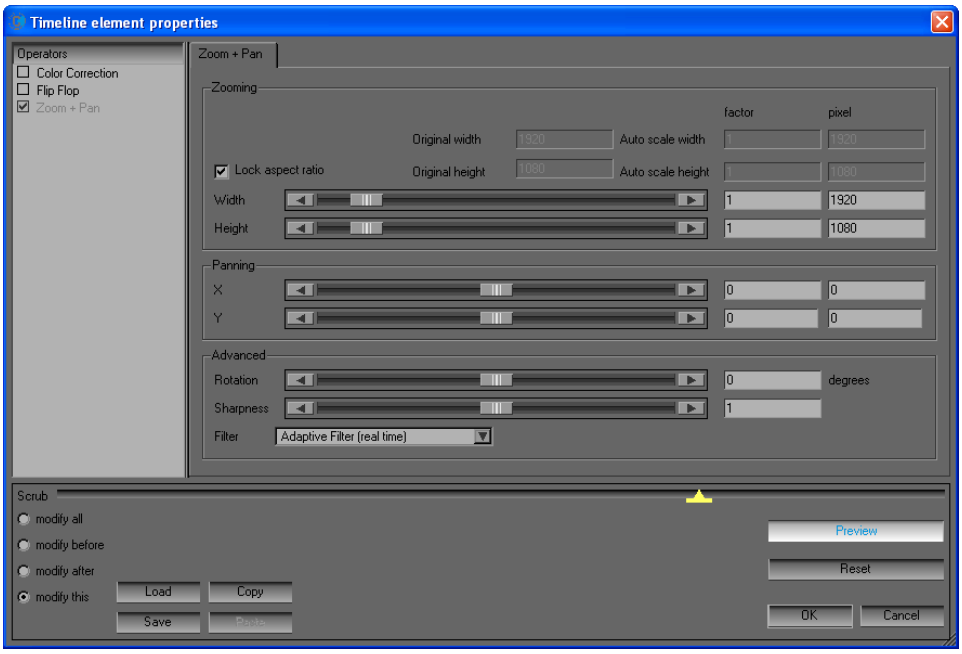


Figure 6-54: Video clip properties

If you need an operator to be applied only to a limited range of frames of a clip, you have to edit the clip with cuts beforehand because the operators set via the clip's properties are valid for a whole timeline clip. Cut the clip at the start and the end of frame range where the operator should be set (see section "Performing a Cut" on page 6-32). Then call up the properties window of the clip that contains the frame range.

Once the properties window of the clip is open, you can activate the desired operators in the operator list and change their settings to your liking as described in the following sections.

6.7.2 Window Overview

After selecting the ***Properties*** menu option on the clip's context menu the **'Timeline element properties'** window is displayed on the screen:

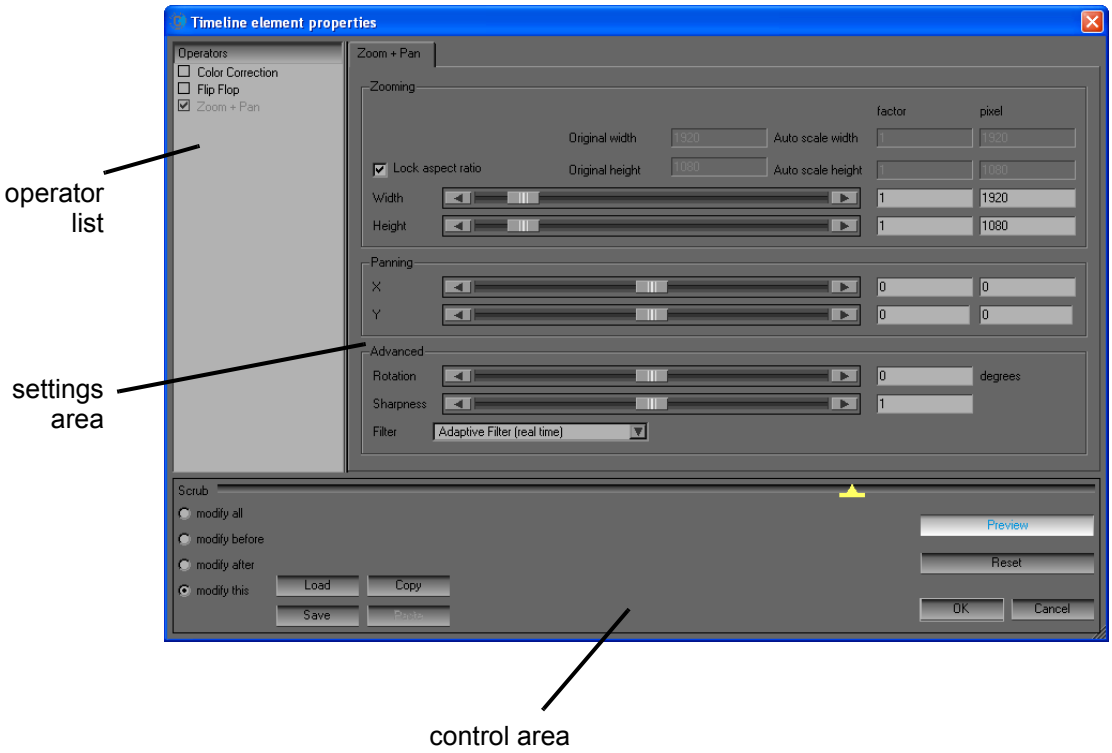


Figure 6-55: Video clip properties

Here you can find the following items:

Operator List

The operator list shows all operators available and installed on your CLIPSTER video system. From the list select an operator by ticking its

check box to the left. Then the respective operator will be activated for the selected clip and a settings tab for this operator will appear in the settings area:

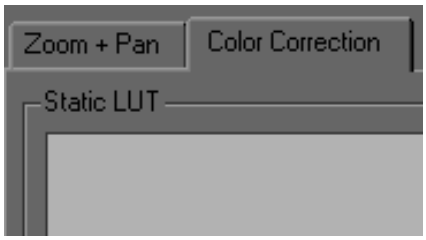


Figure 6-56: Operator tabs after activation of operator

Settings Area

After activating an operator in the operator list its settings will be made available to you via a tab in the settings area. The tabs indicate the different operators that are activated for the respective clip and enable you to switch between them easily. To view the settings of a particular operator and change them simply select the respective tab.

If a tab is not available, make sure that it is activated in the operator list (see section “Operator List” on page 6-65).

Control Area

The control area of the **’Timeline element properties’** window provides you with items to control the timeline as well as the modifications of clips in the timeline. Here the following items can be found:

When transferring settings to other clips in the timeline (e.g. via the ’modify’ radio buttons or the button **COPY**), only the settings of the currently selected and visible operator are copied. Others, even if activated for this clip, are disregarded. If you want to apply the settings of other activated operators to clips in the timeline, you have to do the same operation for each activated operator separately.

Item	Description
Scrub	To view certain parts of the clip on the video overlay of the CLIPSTER Edit Tool, the control area of the **'Timeline element properties'** window provides a scrub bar (timeline of the selected clip). Move the scrub bar cursor with the mouse to the left or right to view the effects of the activated operators on the clip. To view the effects of adjusted operators the **PREVIEW** button has to be activated.
modify all	With this radio button the settings of the currently activated and selected operator will be applied to all video clips present in the timeline.
modify before	The **modify before** radio button will apply the settings of the currently activated and selected operator to the respective clip and all clips that precede it in the timeline.
modify after	The **modify after** radio button will apply the settings of the currently activated and selected operator to the respective clip and all clips that succeed it in the timeline.
modify this	With this radio button the settings of the currently activated and selected operator will be applied to the respective video clip only.
LOAD	The **LOAD** button opens a standard dialog window for the selection of a file. In this dialog window select the operator settings file that you want to apply to the selected clip (see also button **SAVE**). Select the file from the list box or enter its name in the entry field **File name**. Confirm your selection with the button **OPEN**. The selected operator settings will then be loaded into the CLIPSTER Edit Tool and the **'Timeline element properties'** window. File extension: *.co (CLIPSTER operator file)

Item	Description
SAVE	With the button **SAVE** you can save the operator settings of the currently activated operator to a single file. Thus you can build up a library of settings and use them in the future, e.g. if you want to process a similar project again (see also button **LOAD**). After a click on this button a dialog window opens where you have to specify the storage path and file name of the operator settings file to be saved. Then confirm this with the button **SAVE** and the operator settings will be saved to the specified location. File extension: *.co (CLIPSTER operator file)
COPY	The button **COPY** copies the operator settings of the currently activated and selected operator to the clipboard. They can then be transferred to other clips on the timeline easily: Simply open the properties of another clip on the timeline, select the respective operator where the settings have to be copied to and click in the **'Timeline element properties'** window the button **PASTE**.
PASTE	With this button you can paste previously copied operator settings (see button **COPY**) to the currently selected clip.
PREVIEW	The **PREVIEW** button is a toggle button. If it is activated ( ), you can view the effect of the activated operators on the video overlay of the CLIPSTER Edit Tool.
RESET	If the **RESET** button is available, you can restore the standard settings for the currently selected operator with a click on this button.
OK	This button confirms your alterations to the operator settings and closes the **'Timeline element properties'** window. Then the new settings will be in effect either for the selected clip or for the specified range of clips (see the 'modify' radio buttons above).
CANCEL	The button **CANCEL** closes the window of the timeline element properties without confirming your settings. The CLIPSTER Edit Tool will use the latest confirmed settings instead.

6.7.3 Setting the Timeline Element Properties

With the **'Timeline element properties'** window you can set the properties of a clip via the available operators. For this perform the following:

If you need an operator to be applied only to a limited range of frames of a clip, you have to edit the clip with cuts beforehand because the operators set via the clip's properties are valid for a whole timeline clip. Cut the clip at the start and the end of frame range where the operator should be set (see section "Performing a Cut" on page 6-32). Then call up the properties window of the clip that contains the frame range.

- In the **'Timeline element properties'** window activate the operator that you want to apply to the clip in the operator list to the left by ticking its check box.

  Because the operator for zoom and pan is by default active for all clips, its entry is dimmed and cannot be selected in the operator list.

- Switch through the activated operators with the tabs provided in the settings area of the properties window and adjust the settings of the respective operator(s) to your liking.

  The individual settings possibilities of the operators developed by DVS are explained in the next sections. For a description of operators developed by third parties please refer to their respective documentation.

- If you want the settings to be applied to other clips in the timeline, select the appropriate options for the timeline modification (see the 'modify' radio buttons in section "Control Area" on page 6-66). Furthermore, you can copy the settings of the currently selected operator to the clipboard (button **COPY**) and apply them to other clips in the timeline after calling up their properties and selecting the appropriate operator (button **PASTE**).

  When transferring settings to other clips in the timeline (e.g. via the 'modify' radio buttons or the button **COPY**), only the settings of the currently selected operator are copied. If you want to apply the settings of all other activated operators to clips in the timeline, you have to do the same operation for each activated operator separately.

- Confirm your settings with the **OK** button.

As soon as the settings are confirmed, they will be in effect for the selected clip. When a timeline modification was selected as well via the

'modify' radio buttons, the settings of the currently selected operator will be applied to the specified range of clips in the timeline.

Some operators may not be real-time capable. The clips modified with such operators will automatically be subject for a prerendering (see section "Prerendering of Timeline Elements" on page 6-38).

6.7.4 The Operator 'Zoom + Pan'

The operator 'Zoom + Pan' allows to zoom, pan and rotate as well as to sharpen or blur the contents of the video clip in the timeline. It is by default available and active for all clips in the timeline and thus is the first operator visible in the **'Timeline element properties'** window after its activation.

Figure 6-57: Zoom and pan operator

In detail the tab for this operator provides the settings as indicated in the following.

The Zooming Area

In the area **Zooming** you can find the settings items to set the zoom factor for the clip. At the top of this area several information fields are available that detail the original settings of the clip as well as autoscaling information that the CLIPSTER Edit Tool has applied automatically to the clip.

More details about autoscaling can be found in section "How to Configure the Video Output" on page 6-11 and in the section about the video format settings described in the "CLIPSTER Configurations" user guide.

With the sliders below the information fields you can adjust the zooming. Simply pull the sliders to the left to zoom out of the clip or to the right to zoom in. Additionally, you can enter either the zoom factor or the pixel size that the original frames would provide in the respective entry fields to the right of the sliders manually.

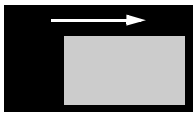
Slider	Slider Movement	Result
Width / **Height**	left	zoom out
	right	zoom in

With the check box **Lock aspect ratio** activated, the original aspect ratio (the relation of width (x) and height (y) of the video format) can be preserved. If ticked, the images will neither get stretched nor compressed and the remaining value will adjust itself automatically.

The way a zooming out of the video clip is performed can be influenced with the combo box **Filter**. Its settings are explained in section “The Advanced Area” on page 6-72.

The Panning Area

In the **Panning** area there are two sliders available. With them you can adjust the panning of the currently selected clip, i.e. you can move, for instance, in a zoomed clip to the part of the clip (image) that should be displayed during a play-out. If you move the **X** slider to the left, the image will move to the left and vice versa. If you move the **Y** slider to the left, it moves up and vice versa:

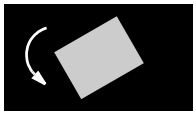
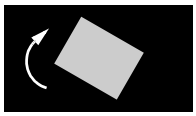
Slider	Slider Movement	Image Movement	Factor and Pixel Range
X	left		negative
	right		positive
Y	left		negative
	right		positive

As already indicated in the table above to the right of the sliders you can find entry fields where you can specify either the image movement factor or the movement in pixels manually. Simply enter the respective value with the appropriate sign as specified in the table to pan the image. The factor and pixel range entries have to be set in dependence on the settings made for zooming.

The Advanced Area

In the **Advanced** area you can find two sliders to set the rotation and sharpness and a combo box to determine the filter used for zooming and sharpness.

With the **Rotation** slider and its entry field to the right you can rotate the clip full circle (±180°). By dragging the slider to the left or entering a negative value in the entry field you can rotate the image counterclockwise and by dragging the slider to the right or entering positive values you can rotate the image clockwise.

Slider	Slider Movement	Rotation	Entry Field Values
Rotation	left		negative
	right		positive

With the **Sharpness** slider you can sharpen or blur the image. However, the effect is only lightly to perceive and this slider and its entry field to the right find its main usage when Moiré effects occur in your image. Moiré effects are interferences in your video output signal usually caused by fine black-and-white image details in your video clip such as striped or checked patterns. If such interferences in your image occur, use the slider and pull it to the left or right until the jittering or other interferences disappear.

Slider	Slider Movement	Result
Sharpness	left	blur
	right	sharpen

To use the **Sharpness** slider the combo box **Filter** has to be set to the 'Adaptive Filter' or 'Software Filter'.

The combo box **Filter** below the sliders is connected to the sliders for sharpness and zooming. It determines the algorithm that will be used to change the video image contents. The following settings are available on the list of the combo box:

Filter	Meaning
`Classic (real time)`	This filter uses an algorithm without filtering and is ideal when working with light or no scaling factors only because it results in very sharp pictures. If this filter is selected, all alterations will be performed in real time. When the 'Classic' filter is used, changes to the sharpness of the images have no effect.
`Adaptive Filter (real time)`	The 'Adaptive Filter' is the default setting for the 'Zoom + Pan' operator. It provides an optimized filtering for every scaling factor which will result in high-end quality pictures without any artefacts. This filter is real-time capable, i.e. all changes to the sharpness or a zooming can be played out immediately.
`Software Filter (rendering)`	With this setting the best possible filter is selected. It provides a software based sophisticated algorithm for all settings on the operator 'Zoom + Pan'. However, if this filter is used, the clip has to be prerendered prior to a play-out (see section "Prerendering of Timeline Elements" on page 6-38).

6.7.5 The Operator 'Flip Flop'

The flip/flop operator enables you to mirror the video image vertically and/or horizontally.

Figure 6-58: Flip/flop operator

The following settings are available on the flip/flop operator:

Setting	Meaning
Flip	When this check box is enabled the clip's images will be flipped in the horizontal direction, i.e. the image is mirrored along the vertical axis.
Flop	Activating the **Flop** check box will mirror the images along the horizontal axis thereby turning the pictures upside down.

If the flip/flop operator is activated, the clip has to be prerendered prior to a play-out (see section "Prerendering of Timeline Elements" on page 6-38).

6.7.6 The Operator 'Color Correction'

With the operator 'Color Correction' you can assign a static look-up table (LUT) to perform a color and/or gamma correction on the currently selected clip. For this you have to enable the check box of the 'Color Correction' operator in the operator list. Then the selected operator will be activated for the clip and its settings tab will be made available in the settings area.

If you have purchased the extended color correction feature, this operator will be supplemented by additional controls that you can use to perform a primary color/gamma correction to the clips in the timeline (see section "The Operator 'Color Correction' (Enhanced)" on page 6-75).

The tab for the operator 'Color Correction' provides the following settings items:

Figure 6-59: Color correction operator

In the area **Static LUT** you can find at its top a list box that will contain selected LUT files in the order they were selected. If the list box contains more than one LUT, the effects of all LUT files are combined to color correct the images of the clip.

Below the list box three buttons are available. With the button **ADD** you can load a LUT. For this select in the opening dialog window the directory path and file name of the look-up table. After this confirm your selection with the button **OPEN**. This will load the selected LUT file and its name and path will be entered in the list box above.

File extension:	*.lut	Look-up table

The selected file will then be valid for the currently selected clip and a color and/or gamma correction will be performed accordingly. By repeating this action you can select and load more than one LUT file and their effects will be combined.

Several sample LUT files are delivered with CLIPSTER. They can be found in the directory *lut* of the CLIPSTER software's installation path (default: *C:\Program Files\DVS\Clipster\lut*).

With the button **DELETE** you can delete an already selected LUT from the list box. Simply select an LUT file entry from the list box and press this button to delete it. If you click this button without selecting an LUT file from the list box first, the last loaded LUT will be deleted.

If more than one LUT file is loaded, the button **SAVE** will combine their color correction settings and create a new LUT file from the already set ones. The selection of this button opens a standard dialog window to save a file. There you have to specify the storage path and file name of the new LUT file. Once you confirm your settings with the button **SAVE**, the file will be created. After that you can use this single LUT file instead of several ones to color correct video clips.

For more details as well as a specification on LUT files please refer to section “LUT File Syntax” on page A-7.

6.7.7 The Operator 'Color Correction' (Enhanced)

The operator 'Color Correction' in its enhanced version is an optionally available feature of the CLIPSTER software. When you have received this option, the operator 'Color Correction' (see section “The Operator 'Color Correction'” on page 6-74) will be supplemented by additional controls that can be used to perform a primary color/gamma correction to the clips in the timeline.

The enhanced version of the operator 'Color Correction' provides a user interface with several sliders to perform a primary color and/or gamma correction on the currently selected clip. To apply a color correction to a clip you have to enable the check box of the 'Color Correction' operator in the operator list. Then the selected operator will be activated for the clip and its settings tab will be made available in the settings area:

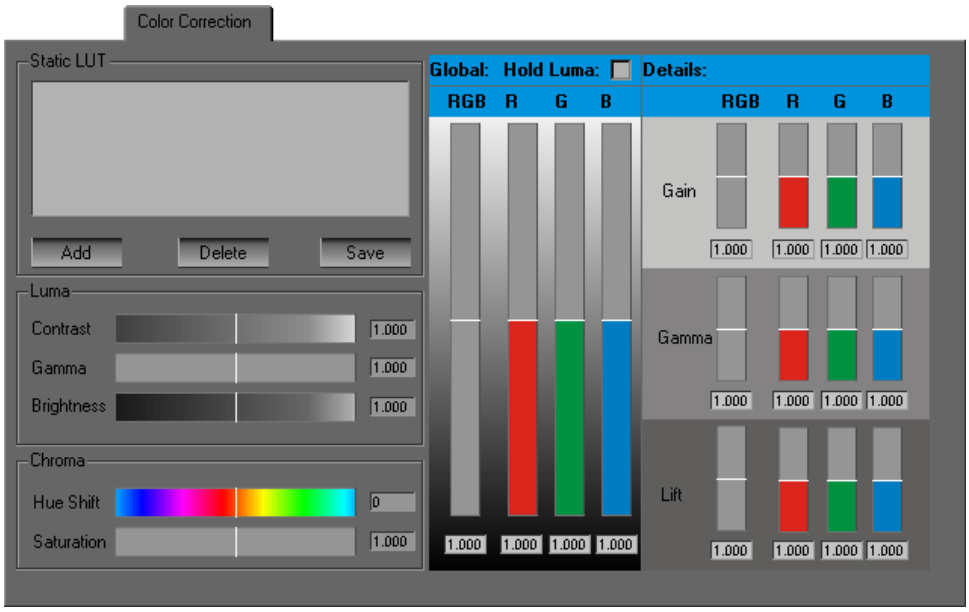


Figure 6-60: Color correction operator (enhanced)

The operator for an enhanced color correction provides for most settings a slider as well as an entry field. You can adjust these settings in several ways:

1. Either select a slider with the mouse and move it left or right (up or down) to the desired settings,
2. use the [Up Arrow]/[Down Arrow] keys after the selection of one of the settings by clicking in its entry field to step the value up or down,
3. use the scroll wheel of your mouse after positioning the mouse cursor over a slider field to step up or down the value, or
4. enter in the entry field of the respective slider the desired setting and then press [Enter] on your keyboard.

A double-click with the mouse on a slider field resets the value to its default setting.

In detail the enhanced ’Color Correction’ operator provides the settings as described in the following:

Static LUT

The area **Static LUT** provides the same items and features as the operator ’Color Correction’ in its standard version. For more details

about this area please refer to section “The Operator ’Color Correction’” on page 6-74.

After loading a static look-up table you can perform further adjustments to the appearance of the clip via the controls of the enhanced color correction.

Luma

In the area **Luma** you can find luminance relevant settings, such as gamma or brightness settings:

Contrast With the contrast items you can set the contrast of the clip’s images. An increase of the contrast setting will push the image colors more towards their full color, whereas a decrease will adjust the colors more towards a tone of grey. You can adjust the settings between 0.000 (no contrast) and 2.000 (maximum contrast).

Gamma **Gamma** adjusts the mid-tones of an image. Lowering the value will darken the mid-tones, bringing the image closer to black. Raising the value will lighten the mid-tones while bringing the image closer to white. Sometimes this setting can be used to make details visible that are usually hidden in shadows or highlights. The settings range is between 0.1 and 3 where 1 represents the unchanged image.

Brightness The brightness setting adjusts the luminance of the image and indicates the bright- and darkness of the image colors. It is measured between 0.000 (black) and 2.000 (white).

Chroma

With the **Chroma** area you can adjust the more color related settings, such as hue:

Hue The hue setting moves the colors of the image around the color wheel in the HSL color space (±180°). It is recommended to use this setting lightly for small corrections only: Adjustments greater ±10 usually produce dramatic color changes.

Saturation A color’s saturation is its intensity. A higher saturation will make the color to appear richer, while a lower saturation makes it look paler, or in other words the saturation is the proportion of grey in relation to the color’s hue. This setting can be set between 0.000 (grey) and 2.000 (full saturation).

Global

In the **Global** area you can find sliders for each color value (**R**, **G** and **B**) as well as a master slider to adjust them all at once.

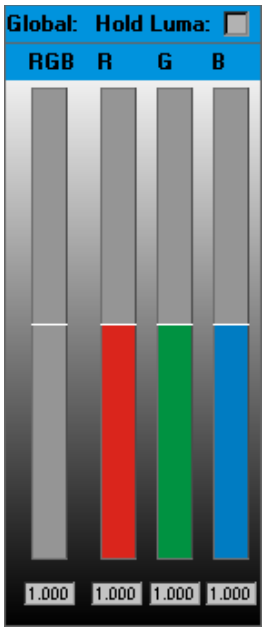


Figure 6-61: The global color settings

Use the sliders **R**, **G** or **B** to step up or down the color values of the image for the respective color component (red, green or blue). With the master slider **RGB** to the left you can set the settings for all three color components at once, even after already adjusting individual color components.

The check box **Hold Luma** allows you to hold the luminance level of the clip while adjusting a single color component. Usually, while adjusting a color component, the luminance of the clip is changed as well, i.e. changes occur in the **Brightness** setting, too. When the check box is activated during the adjustment of a color component, e.g. **G**, instead of adjusting the brightness parameter, the luminance of the image is set via the remaining two values (**R** and **B**) which will be set according to your changes while the luminance level is preserved.

Details

To the right of the **Global** area you can find the **Details** area where you can adjust the color components in more detail. This area provides the same sliders as the previously described ones but for further accuracy they are split into the three contrast shades: gain, gamma and lift.

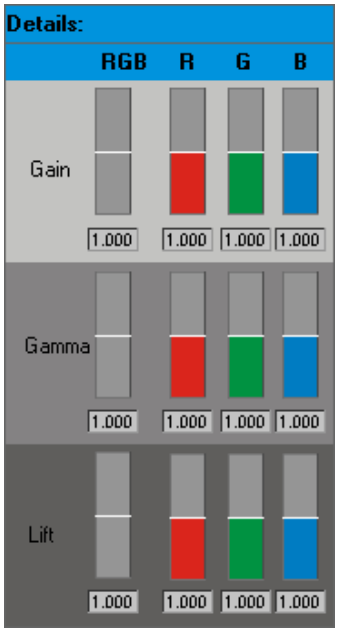


Figure 6-62: The detailed color settings

Use the sliders the same way as described for the global color settings. Then you can set the values for each color component of the brighter, average and darker parts of an image separately, for example, by altering the brightest parts of the image (highlights) while preserving the average and darkest parts (shadows).

Gain	Adjusts brighter parts of the clip, i.e. the gain or white point. Values range from 0.000 to 2.000.
Gamma	Adjusts the average parts of the clip, i.e. the gamma or mid-tones. Values range from 0.1 to 3.
Lift	Adjusts the darker parts of the clip, i.e. the lift or black point. Values range from 0.000 to 2.000.

The Menus

At the top of the CLIPSTER Edit Tool module you can see a menu bar.

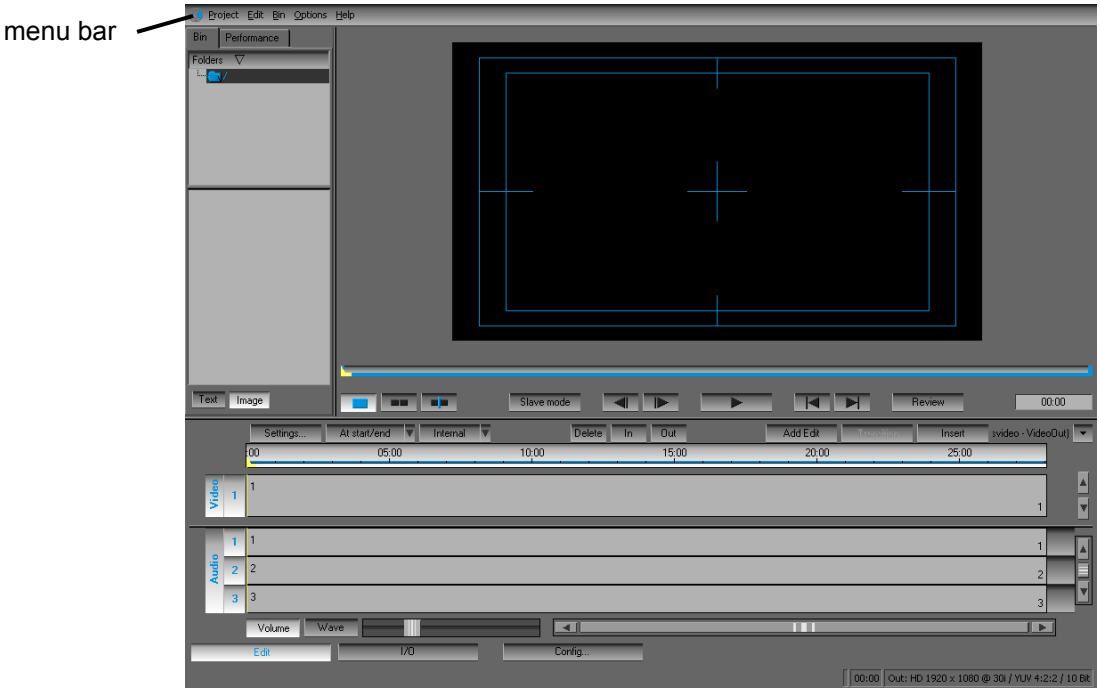


Figure 7-1: Menu bar of CLIPSTER Edit Tool

This menu bar provides access to functions and tasks of an administrative nature to the CLIPSTER Edit Tool. Here you can find, for example, import and export functions as well as several menu options generally concerned with projects and project files.

This chapter describes the menu bar of the CLIPSTER Edit Tool user interface. All menus and menu options will be explained.

7.1 The Menu of the CLIPSTER Icon

The CLIPSTER icon on the menu bar of the user interface provides menu options to control the user interface of the CLIPSTER software in general. Here you can find the following menu options:

Figure 7-2: The menu of the CLIPSTER icon

They are described in the following sections.

7.1.1 Minimize

To reduce the CLIPSTER software to a button on the Windows operating system task bar, click the ***Minimize*** menu option on the menu of the CLIPSTER icon. You can then, for instance, access other programs that are installed on your video system.

7.1.2 Exit

The menu option ***Exit*** ends the current CLIPSTER Edit Tool session.

There is no way to end the Edit Tool alone. When you exit the Edit Tool, the whole CLIPSTER software will shut down. Therefore, it is recommended to finish all tasks, such as a record or a play-out operation, beforehand. Otherwise the respective task may get interrupted.

This closes the CLIPSTER software. After that you can, for example, shut down the video system.

7.2 The 'Project' Menu

The menu ***Project*** contains the following menu options:

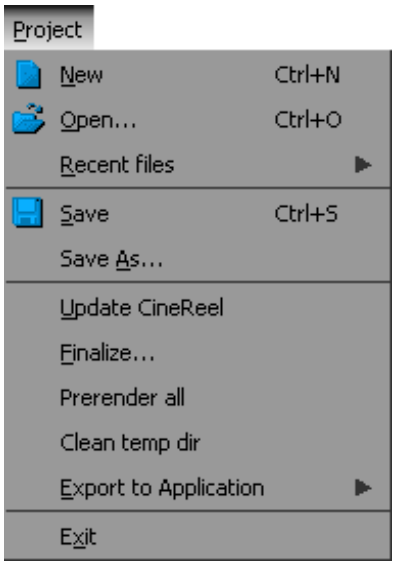


*Figure 7-3: The **Project** menu*

They are in detail described in the following sections.

7.2.1 New

The menu option ***New*** on the ***Project*** menu opens a new project file in the CLIPSTER Edit Tool.

Once the new project file is loaded, you can begin your new project, for instance, by adding clips to the bin.

In the CLIPSTER Edit Tool only one project file can be processed at a time. If you open an already saved project or activate the menu option ***New*** again, the currently active project file will be closed. However, if you have already performed changes to the project, you will be asked by the program if you want to save the current project.

When you start a new project file, the autosave function is disabled because of a missing file name for the project. The autosave function automatically saves your project file after a certain period of time for backup purposes (see "CLIPSTER Configurations" user guide for more details). To enable the autosave function you have to save the project file first and thus assign a name to it.

The optionally available VTR task mode of the CLIPSTER I/O Tool uses project files different from the ones usually saved via the CLIPSTER software. Further information about this task mode and its project files can be found in the “CLIPSTER I/O Tool” user guide.

7.2.2 Open…

The ***Open…*** menu option opens the standard dialog window of the operating system for the selection of a file. In this dialog window select the project file that you want to open in the CLIPSTER Edit Tool.

File extensions:	`*.cp`	CLIPSTER project file
	`*.cp.autosave`	Automatically saved intermediate situation
	`*.backup.cp`	Backup file of old project file

You may select the file from the list box or enter its name in the entry field **File name**.

If the list box does not contain the desired project file name, make sure that the right drive and directory has been selected.

Confirm your selection with the button **OPEN**. The selected project file will then be loaded into the CLIPSTER Edit Tool. During the loading, the bin and thus the timeline will be checked for inconsistencies, i.e. it is tested whether the first and the last frame of each clip present in the bin is actually available on the video system.

Missing frames in-between the first and the last frame of a clip will be substituted during a play-out by the CLIPSTER Edit Tool with a standard image automatically (see section “Consistencies of Clips” on page 6-51). Then it is recommended to perform a more accurate testing of the bin with the help of the menu option ***Check Bin*** on the ***Bin*** menu (see section “Check Bin” on page 7-22).

Additionally, with the project file the bin, the timeline, the viewing settings, the output settings, etc. will be set anew and the layout will be updated.

In the CLIPSTER Edit Tool only one project file can be processed at a time. If you open another project or activate the menu option ***New***, the currently active project file will be closed. However, if you have already performed changes to the project, you will be asked by the program if you want to save the current project.

The optionally available VTR task mode of the CLIPSTER I/O Tool uses project files different from the ones usually saved via the CLIPSTER software. Further information about this task mode and its project files can be found in the "CLIPSTER I/O Tool" user guide.

7.2.3 Recent files

The ***Recent files*** option on the ***Project*** menu opens a submenu where you can find project files that were recently loaded with the CLIPSTER Edit Tool. From the submenu select a file to work with the respective project again.

You can adjust the number of files that will be listed on this submenu via the Configuration Tool (see "CLIPSTER Configurations" user guide for more details).

7.2.4 Save

With the menu option ***Save*** you can save the currently open project file. If the edited project file was a new one, a dialog window opens where you have to specify the storage path and file name for the project. Project files are by default stored with the file extensions **.cp* (or **.cp.autosave* if it is saved via the autosave function, see "CLIPSTER Configurations" user guide for more details). Furthermore, during the saving procedure the old project file is saved as an additional backup file with the file extension **.backup.cp*.

File extensions:	**.cp*	CLIPSTER project file
	**.cp.autosave*	Automatically saved intermediate situation
	**.backup.cp*	Backup file of old project file

If a file name is already assigned to the currently opened project, this menu option will immediately save the project under the assigned name.

In the project file the bin and the clips of the timeline including all operators will be saved. Additionally, a lot of settings will be saved within

the project file as well, for example, the viewing settings of the tool, the timeline and the control area, the output settings as well as the project related configuration settings made in the Configuration Tool of the CLIPSTER software.

The optionally available VTR task mode of the CLIPSTER I/O Tool uses project files different from the ones usually saved via the CLIPSTER software. Further information about this task mode and its project files can be found in the “CLIPSTER I/O Tool” user guide.

7.2.5 Save As… Save As...

The standard dialog window to save a file will open after the selection of the menu option ***Save As…***. This menu option allows to save a project file under a different name. Further information about the saving procedure itself can be found in section “Save” on page 7-5.

The optionally available VTR task mode of the CLIPSTER I/O Tool uses project files different from the ones usually saved via the CLIPSTER software. Further information about this task mode and its project files can be found in the “CLIPSTER I/O Tool” user guide.

7.2.6 Update CineReel Update CineReel

The DVS CineReel is a transportable, outdoor-proof hard disk array especially designed for the on-set use of digital film capturing: The film material is directly stored on the hard disk array, and when finished, the array can be disconnected and transported to an editing site while the crew continues to capture on the set with an empty DVS CineReel. On the editing site the hard disk array can be easily connected to CLIPSTER and the material is instantly recognized by the system. It can be processed immediately.

Of course, a DVS CineReel can also be used to transport large projects between CLIPSTER and another digital disk recorder, for example, the Pronto2K by DVS.

The menu option ***Update CineReel*** on the ***Project*** menu checks whether a DVS CineReel is connected to the video system. Then in the bin a folder with the name `CineReel` is created and the film material on the hard disk array is referenced to this folder. In the newly created folder the directory structure on the DVS CineReel is imitated in the CLIPSTER Edit Tool and for each clip present on the hard disk

array a thumbnail preview will be available. You can then work with the data right away.

With the menu option ***Update CineReel*** no copying process of any kind is initiated. Only representations of the clips with references to the externally connected DVS CineReel are created in the bin of the CLIPSTER Edit Tool. Furthermore, the DVS CineReel as a storage for video material will be far too slow for editing purposes in real time (e.g. transitions). Therefore, it is recommended to copy the material to the video hard disk array of CLIPSTER before processing.

Do not reference video material on one DVS CineReel with CLIPSTER and then connect another DVS CineReel without saving the project first. Only if the project was saved, you may connect another DVS CineReel and begin a new project. Otherwise your changes to the first project file may be lost.

7.2.7 Finalize…

The ***Finalize*** menu option generates a new clip from your project's timeline while the original material is not touched or altered, i.e. the original data and also the project file are preserved. Via this option you have the possibility to select the video and/or audio format freely. Additionally, you may limit the rendering of the timeline with a defined in- and/or outpoint of the timeline or render video and audio separately.

After the selection of the menu option ***Finalize*** the window **'Finalizing'** will be displayed on the screen:

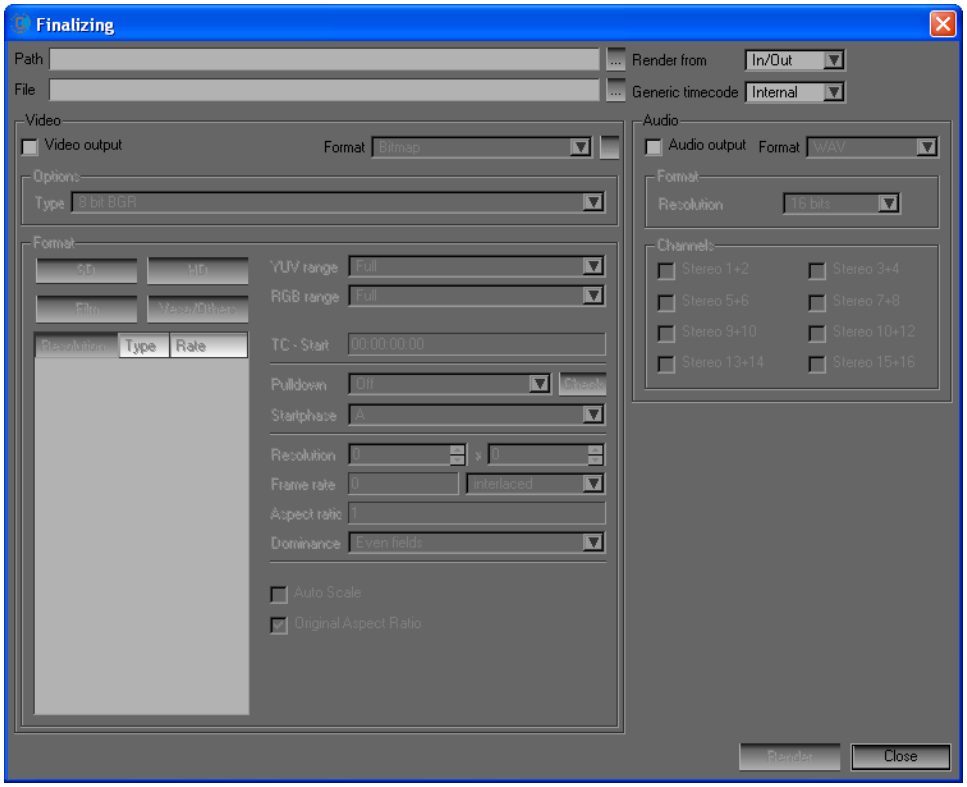


Figure 7-4: Window to finalize a project

Storage Information

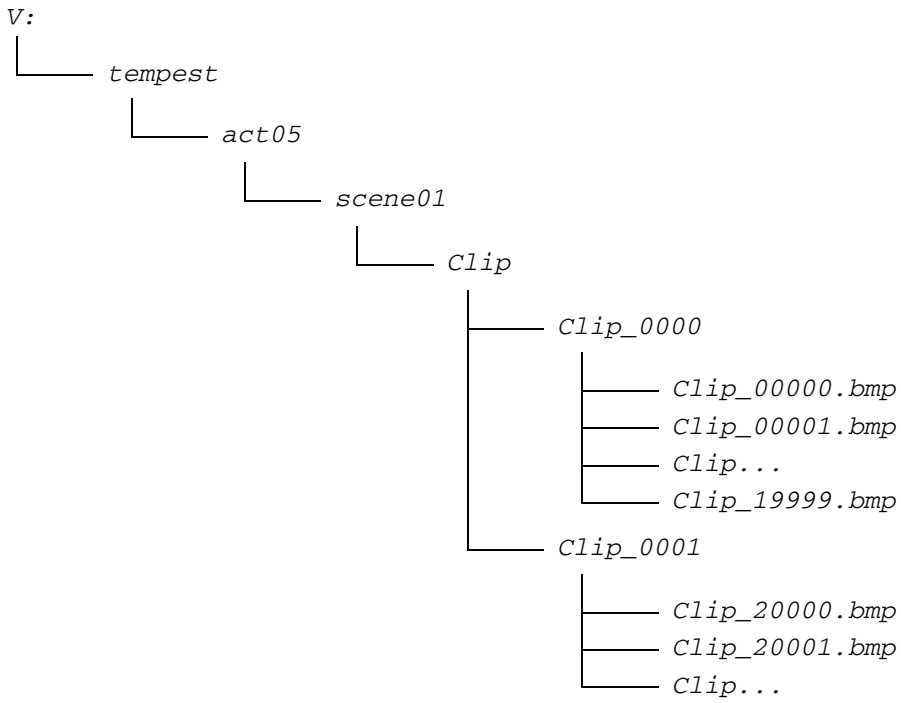
In the entry field **File** enter the name of the clip to be generated. You may also click on the button to the right of this field (...) to select an already existing file.

Notation:	Standard file names of the Windows operating system, i.e. do not use the following characters: `% / \ , : * ? " < > |` Furthermore, leave out the file extension.
Example:	`Clip`

In the entry field **Path** you have to state the storage path where to store the new clip. As with the entry field above you may also click on the button to the right of this entry field (...) to select an already existing directory or create a new directory via the provided buttons of the opening dialog window.

Notation:	`drive_letter:\directory\subdirectory` Instead of the backslash (`\`) you may also use a slash (`/`).
Example:	`V:\tempest\act05\scene01`

Regarding the file name and path it is sufficient for the rendering of a new clip to enter an existing path in the field **Path** and to state a file name. All other information necessary, such as the numbering of frames, will be added by the CLIPSTER Edit Tool automatically. For instance, our examples mentioned above would lead to the following output on the video hard disk when as a video output format the **.bmp* file format were selected (see section “The Area ’Video’” on page 7-11):



In the path *V:\tempest\act05\scene01* a directory will be created carrying the name *Clip*. Beneath it a subdirectory will be created with the name *Clip_0000*. In this subdirectory the first 20,000 frames of your timeline will be stored.

Windows may cause problems if more than 20,000 files are stored in one directory.

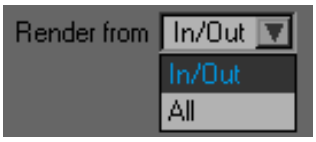
The file name of the first frame of your rendered timeline will be *Clip_00000.bmp*. The number in the file name will increase by one with every other generated frame. If the 20,000th frame is reached, the CLIPSTER Edit Tool will again create a subdirectory (*Clip_0001*) in the selected path and start the generation of the other

20,000 frames, and so on until the project is rendered completely according to your settings.

If an audio finalization was selected, for each 20,000 frames separate audio files are generated in the respective subdirectory (see section “The Area ’Audio’” on page 7-13).

Video and audio clips divided in several subdirectories are called multi-clips. They can be handled by the CLIPSTER software as one clip. Further information about this can be found in section “Details about Clips” on page 4-10.

If a container format is selected as the file format for a rendering, you will receive in the first subdirectory a single file only that contains both, audio and video.



In the **’Finalizing**’ window to the right of the entry fields for the file name and the path, you find the combo box **Render from**. There you can select whether the CLIPSTER Edit Tool should render the whole timeline (`All`) or the timeline between the set in- and outpoint only (`In/Out`). If `In/Out` is selected but no in- and outpoint defined in the timeline, the Edit Tool will render the whole timeline.

Directly below the combo box **Render from** you can find the combo box **Generic timecode**. With it you select the timecode type that should be written as the source timecode into the file (if supported by the file format). During the finalizing the selected timecode will then be written as the source timecode to the location in the file’s header especially reserved for that kind of meta data. Afterwards the finalized clip will contain the selected source timecode and it can then be used by applications that support source timecode. The following settings are available for the combo box **Generic timecode**.

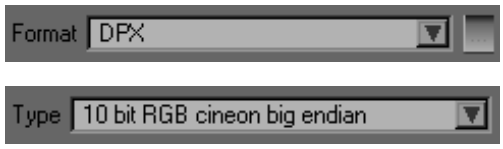
Selection	Meaning
`Internal`	The internal timecode of the CLIPSTER Edit Tool’s timeline is written to the correct location in the file header, i.e. afterwards the internal timecode of the timeline is then provided by the file as its source timecode.
`Source TC`	The source timecode provided by the clips already present in the timeline is written to the file’s header as its source timecode.

Currently, of all file formats supported by the CLIPSTER software, only the *`*.dpx`* file format is provided with source timecode information. To use the combo box **Generic timecode** the **Format** combo box has to be set to `DPX`.

The Area 'Video'

In the area **Video** select the video format for the rendering of the new clip. With the finalizing function of the CLIPSTER Edit Tool you are able to generate video and audio files separately via the check boxes, for example, in case of video the check box **Video output**. When calling the **'Finalizing'** window for the first time, the items of the area **Video** are not available. Via the check box **Video output** at the top of this area you can enable the items and thus decide that you want to generate a video clip. If you do not want to generate a video clip but an audio clip only, leave this check box unchecked and activate the check box **Audio output** instead (see section "The Area 'Audio'" on page 7-13).

If a container format is selected as the file format (e.g. `Windows Media`), you cannot generate audio and video separately. Both will automatically be included in a single file only.



To the right of the check box **Video output** you can find the **Format** combo box. Here you have to select the file format for your clip to be generated. For a list of the supported file formats of CLIPSTER see section "Supported File Formats" on page A-5. However, some of the file formats offer additional saving types, such as bit depth and/or byte order settings. If provided by the file format, select from the **Type** combo box in the **Options** area the desired additional saving type. Additionally, there is a button (...) located to the right of the **Format** combo box that may get available in dependence on the selected file format. With it you can set additional configurations if supported by the selected file format.

In the area **Format** you have to state the further output formats of your clip to be generated. There you can find the following items:

On the left side of the area **Video** you can see several buttons. With them and with the list box below the buttons choose one of the predefined video formats for the rendering. The project's timeline will then be rendered to this format. Select a button to display the available formats in the list box below. Then select from the list box the desired format. This format will be shown on the right side of the area **Video** in the editable resolution fields and, if appropriate, the pulldown items will be made available.

If you have selected a YUV format as the file format, the **YUV range** setting has to be applied. It specifies whether the color space range of the finalized clip will be in a restricted (`Head`) or in a full value range (`Full`). The same applies to the **RGB range** setting: If you have selected an RGB file format, this setting will be evaluated. It specifies

whether the color space range of the finalized clip will be in a restricted (`Head`) or in a full value range (`Full`).

Further information about color space ranges and color space conversions can be found in the “CLIPSTER Configurations” user guide.

In the field **TC-Start** select a timecode/frame offset for the rendered clip.

The **TC-Start** entry field will be evaluated only if a file format is selected that stores source timecode information in its header (e.g. *.dpx). Then the clip will provide this timecode offset in its source timecode.

If appropriate and available, select the necessary pulldown method from the **Pulldown** and **Startphase** combo boxes. Pulldown is needed when working with film-originated material. The pulldown feature offers a film-to-NTSC conversion: It renders video data that is in 24 progressive frames/sec. (film) as 30 interlaced frames/sec. (NTSC). This is achieved by splitting the film frames alternately into two and three video fields.

Currently for a finalizing the pulldown feature is not available.

To use this feature the video track(s) of the timeline should contain 24p material only. With the **CHECK** button to the right you can ascertain that all material in the timeline is in this format. Prior to using pulldown it is recommended to check the timeline with this button.

Further information about the pulldown settings and pulldown in general can be found in the “CLIPSTER Configurations” user guide.

With the fields regarding the resolution of the rendering you set the actual output resolution of the clip to be rendered and generated. As the fields indicate, with CLIPSTER you can alter the resolution to any format you like and the new clip will be present in this resolution. Use the **Resolution** fields to change height and width of the clip.

The **Frame rate** entry field will be evaluated only if a file format is selected that stores source timecode information in its header (e.g. *.dpx). Then the specified timecode will provide the entered frame rate as the source timecode’s frame rate.

Use the combo box for the field mode to select whether your original material is in interlaced, progressive or segmented frames format.

Via the entry field **Aspect ratio** you can change the aspect ratio of your image content and thus compress or stretch the image. The aspect ratio value should be entered as the value of the x-axis divided by the value of the y-axis.

Aspect ratio: `x/y`

Last but not least select the dominance of your interlaced material from the combo box **Dominance**. The `Odd fields` value starts with the second video field of the interlaced image while the value `Even fields` begins with the first video field.

The **Auto Scale** and **Original Aspect Ratio** check boxes enable you to scale and resize your original video material. Both settings are concerned with the video format of the clips in the timeline, and their output in the clip to be rendered must be seen in relation to the selected video format of the new clip. With the check box **Auto Scale** activated, the clips of the timeline will be scaled to their maximum allowable width or height so that no information gets lost, i.e. the images will not get cropped with this function. If you leave the **Auto Scale** check box unchecked, the material will maintain its original size.

Via the check box **Original Aspect Ratio** the aspect ratio (the relation of width (x) and height (y) of the video format) can be preserved. Thus, the images will not get stretched or compressed.

More details about autoscaling in combination with aspect ratio can be found in the section about the video format settings described in the “CLIPSTER Configurations” user guide.

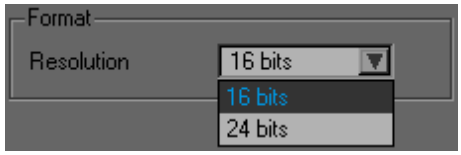
The Area ’Audio’

Via the area **Audio** you can enable and configure the finalizing of audio. Activate the check box **Audio output** at the top of this area to enable the generation of an audio clip. With the finalizing dialog of the CLIPSTER Edit Tool you can render video and audio together or separately if desired: Simply select the appropriate output check box (compare section “The Area ’Video’” on page 7-11).

If a container format is selected as the file format (e.g. `Windows Media`), you cannot generate audio and video separately. Both will automatically be included in a single file only.

To the right of the check box **Audio output** the **Format** combo box can be found. From this combo box select the file format for the audio clip to be generated. For a list of the supported audio file formats of CLIPSTER please refer to section “Supported File Formats” on page A-5.

From the area **Format** you have to select the resolution of the audio files (bit depth). The CLIPSTER Edit Tool supports all common resolutions.



Below the area **Format** the area **Channels** is located which holds several check boxes for the available audio channels. You have to use these check boxes to select audio channels for the output. The stereo channel check boxes of this area are directly related to the audio channel output settings of the timeline (see section “How to Configure the Audio Output” on page 6-12): They will record and render whatever audio track is set to the respective output channels. Furthermore, the Edit Tool will render one file for each stereo channel that is selected here.

Example 1:		
If audio track 1 of the CLIPSTER Edit Tool contains an audio clip (output configuration to channel 1 and 2) while the second track does not (output configuration to channel 3 and 4) and you select in the ’Finalizing’ window the channels 1, 2, 3 and 4 for an audio file generation, you will get one file that contains audio (for channel 1 and 2) and you will get another file where you can hear nothing (for channel 3 and 4).		
Audio track of Edit Tool	1	2
Contents	audio file 1	-
Output settings of tracks	channel 1 + 2	channel 3 + 4
Output settings in **’Finalizing’** window	channel 1 + 2, channel 3 + 4	
Results in file containing…	audio of audio file 1	nothing (mute)

Next follows another example to demonstrate how to use the finalizing of the CLIPSTER Edit Tool for mixing and blending operations of audio files:

Example 2:		
The audio track 1 and 2 of the CLIPSTER Edit Tool contain each an audio clip with different contents (audio file 1 and 2). Both tracks are configured to an output of channel 1 and 2. In the **'Finalizing'** window you select the channels 1 and 2 for an audio file generation. This will result in one audio file that contains the mixed contents of the audio files 1 and 2.		
Audio track of Edit Tool	1	2
Contents	audio file 1	audio file 2
Output settings of tracks	channel 1 + 2	channel 1 + 2
Output settings in **'Finalizing'** window	channel 1 + 2	
Results in file containing …	mixed contents of audio file 1 and 2	

CLIPSTER will generate the new audio files according to your stated storage information (see section "Storage Information" on page 7-8) and your selected audio output format. If the *.wav file format were selected for our first example above, it would lead to the following output:

```
<Path entry field>
    └── <File entry field>
            ├── <File entry field>_0000
            │       └── <File entry field>_<Channels>-0.wav
            └── <File entry field>_0001
                    └── <File entry field>_<Channels>-1.wav
```

<Path entry field> and <File entry field> are place holders for the contents of the respective entry fields in the **'Finalizing'** window. For further information on the storing of finalized files see section "Storage Information" on page 7-8). The place holder <Channels> indicates the selected audio channels of the area **Channels**. For each enabled check box one file will be created.

If a container format is selected as the file format (e.g. Windows Media), you will receive a single file only that contains both, audio and video.

The audio files are stored in their respective frames' subdirectory. For each 20,000 frames the CLIPSTER Edit Tool generates an extra subdirectory to store the image files in (because Windows may cause problems if more than 20,000 files are stored in one directory). In each of these subdirectories, the matching set of audio files is stored, meaning the audio files are appropriately cut to match the 20,000 frames of video. If no video finalization was selected, all audio files will be stored in the first subdirectory, i.e. in *<File entry field>_0000*.

Video and audio clips divided in several subdirectories are called multi-clips. They can be handled by the CLIPSTER software as one clip. Further information about this can be found in section "Details about Clips" on page 4-10.

Finalizing

The buttons on the bottom right-hand side of the window **'Finalizing'** allow you to control this window:

Use the button **RENDER** to start the generation and rendering process.

The button **RENDER** will be available as soon as the necessary information are set, such as output type, storage information and format.

The state of the rendering process will be indicated by a progress bar. As soon as it reaches 100%, the process will be finished and the progress bar will be closed. You can then access the generated clip(s).

With the button **CLOSE** you can close the **'Finalizing'** window without starting a rendering process. You will then return to the main window of the CLIPSTER software.

7.2.8 Prerender all

With the ***Prerender all*** menu option you can prerender all parts of the timeline that need to be processed before a play-out together in one step. A prerendering may be indicated prior to a play-out when CLIPSTER is not able to handle the contents of the timeline in real time, for instance, a special operator. This will be displayed in the timeline with

a yellow line above the respective element that cannot be played out (see section “Prerendering of Timeline Elements” on page 6-38).

Depending on the number of elements to be prerendered, the length of the elements and the configured output settings, the prerendering may take some time (up to several hours of processing).

Further information about how to manage you project best when parts of the timeline need prerendering can be found in section “Notes on Project Management” on page 2-9.

A changing of the video format will set all already prerendered parts of the timeline back to the ’need to be prerendered’ state, i.e. the yellow line in the indicator line will return.

You can delete the prerendered files no longer required (e.g. after the deletion of an operator that needed prerendering) via the menu option ***Clean temp dir*** (see section “Clean temp dir” on page 7-17). Furthermore, the no longer necessary files will be deleted automatically as soon as the project is closed.

After a prerendering save your project file. If an already saved project file is not saved after a prerendering process again, the prerendered files will not be recognized by the CLIPSTER Edit Tool when the project file is loaded once more. In expression, neither will they be used for a play-out nor can they be deleted with the ***Clean temp dir*** menu option. They will remain on your video hard disk and have to be deleted manually as described in section “Cleaning the Temporary Data Manually” on page A-10.

7.2.9 Clean temp dir

When you continue your work on a timeline that was already prerendered, e.g with the ***Prerender all*** menu option (see section “Prerender all” on page 7-16), and you delete or change some of the already prerendered timeline elements, the CLIPSTER Edit Tool will no longer need the already generated files.

A change of the video format will also make already prerendered files of timeline elements obsolete.

A prerendering may be necessary before a play-out when CLIPSTER is not able to handle the contents of the timeline (e.g. a special operator) in real time. This will be indicated in the timeline by a yellow line above the respective element that cannot be played out (see section “Prerendering of Timeline Elements” on page 6-38). With a prerendering CLIPSTER automatically calculates the respective parts and generates temporary images that are then played-out instead of the

original material of the timeline. Those files are stored in a temporary directory and administered automatically by the CLIPSTER Edit Tool.

However, if you continue your work on such a timeline and delete or alter elements that needed prerendering, the already prerendered files are not deleted or altered automatically during the process of your work. The no longer necessary files are marked for deletion only and remain on your video workstation until you close the project or remove them with the ***Clean temp dir*** menu option.

While continuing your work on the project, the ***Clean temp dir*** menu option enables you to clean your temporary directory of files no longer needed and marked for a deletion.

It is best to handle and administer the temporary data project specific, meaning for each project in a different temporary storage location. Further information about this can be found in section “Notes on Project Management” on page 2-9.

After a prerendering save your project file. If an already saved project file is not saved after a prerendering process again, the prerendered files will not be recognized by the CLIPSTER Edit Tool when the project file is loaded once more: Neither will they be used for a play-out nor will they be deleted via the ***Clean temp dir*** menu option. They have to be deleted manually (as described in section “Cleaning the Temporary Data Manually” on page A-10).

7.2.10 Export to Application

The menu option ***Export to Application*** opens a submenu where you can select other applications than the CLIPSTER software to process your video data.

To have an application available in this submenu you have to define and set it first. This can be done with the Configuration Tool of CLIPSTER (group **External**, see “CLIPSTER Configurations” user guide). Please note that you have to set the appropriate program parameters, if applicable, in the **Options** entry field as well.

Once a clip is dragged from the bin to the control area of the CLIPSTER Edit Tool (see section “The Master Mode” on page 5-9) or made available via the ***Match frame*** menu option on the context menu of the timeline (see section “Matching an Individual Video Frame” on page 6-52), the set application(s) under this option will be available. As soon as one is selected, the video data will be transferred to the

respective program according to your settings made for this application in the Configuration Tool of CLIPSTER.

For a detailed description of the settings see “CLIPSTER Configurations” user guide.

In the master mode of the CLIPSTER Edit Tool you can select an in- and outpoint for a clip to be added to the timeline. When sequence processing is activated, each frame between the set in- and outpoint of the clip will be sent to the external application.

Note that when the **Destructive export** option is enabled in the Configuration Tool, the source data will be directly processed with all specified external applications. If you save the data in such a case with the external application, the source material will be overwritten.

If a non-destructive export is selected for the external applications, the source material of the clip will be copied to the same path and location where the original material is stored with an incrementing number added to the directory name of the clip (*<name of clip's directory><incrementing number>*). After this the copied source material will be opened in the external application where you can process it. In the meantime you will receive in the CLIPSTER Edit Tool a new bin clip which will refer to the location of the copied material. Once the material is processed with the other application, you can save it and then use the new bin clip as well as the unaltered original source in CLIPSTER as usual.

When a destructive export is selected for the external applications, no changes will be applied to the bin clip in the CLIPSTER Edit Tool. The source material is sent directly to the external application where it can be processed. Once the changes are saved, the material can be immediately accessed via the old bin clip in CLIPSTER. However, due to the destructive export, your original source material on the video hard disk array will be lost.

7.2.11 Exit

The menu option ***Exit*** ends the current CLIPSTER Edit Tool session.

There is no way to end the Edit Tool alone. When you exit the Edit Tool, the whole CLIPSTER software will shut down. Therefore, it is recommended to finish all tasks, such as a record or a play-out operation, beforehand. Otherwise the respective task may get interrupted.

This closes the CLIPSTER software. After that you can, for example, shut down the video system.

7.3 The 'Edit' Menu

The menu ***Edit*** provides functions to aid you in your editing process. In detail it contains the menu options shown below:

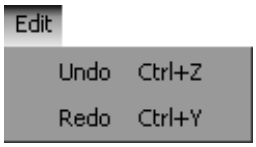
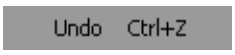


*Figure 7-5: The **Edit** menu*

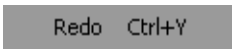
They are described in the following sections.

7.3.1 Undo



The menu option ***Undo*** allows to undo your latest timeline related action. When this option is selected, the timeline will be restored to the state before your last timeline operation.

7.3.2 Redo



The ***Redo*** menu option will reverse the action performed via the ***Undo*** menu option (see section "Undo" on page 7-20). To redo an action select this menu option.

7.4 The 'Bin' Menu

The menu ***Bin*** provides several functions to facilitate your work with the bin. In detail it contains the menu options shown below:

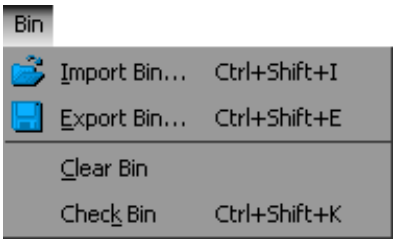


*Figure 7-6: The **Bin** menu*

They will be described in detail in the following sections.

7.4.1 Import Bin…

With the menu option ***Import Bin…*** you can import the bin of another project into your currently active project. The selection of this menu option opens a standard dialog window for a file selection.

If your currently active bin was altered and not saved, you will be asked by the program whether you want to save its contents to a bin file. When you answer this query with **YES**, the same procedure as to export a bin will be initiated (see section "Export Bin…" on page 7-22).

To import a bin choose in the dialog window for the selection of a file the project file that contains the desired bin. For the import you may also select a bin file which may have been previously created via the menu option ***Export Bin…*** (see section "Export Bin…" on page 7-22).

File extensions:	`*.cp`	CLIPSTER project file
	`*.cb`	CLIPSTER bin file
	`*.cp.autosave`	Automatically saved intermediate situation
	`*.backup.cp`	Backup file of old project file

Select the file from the list box of the dialog window or enter the its name in the entry field **File name**.

If the list box does not contain the desired file name, make sure that the correct drive and directory has been selected.

Confirm your selection with the button **OPEN**. The selected bin with folders and clips of the respective file will then be loaded into your currently active project. The imported bin will be checked for incon-

sistencies, i.e. it is tested whether the first and the last frame of each clip is actually present on the video system.

With the help of the menu option ***Check Bin*** of the ***Bin*** menu you can perform a more accurate testing of your bin (see section “Check Bin” on page 7-22).

7.4.2 Export Bin…

You can export the bin of your currently active project with the menu option ***Export Bin…***.

The selection of this menu option opens a standard dialog window to save a file. There you have to specify the storage path and file name to export the bin. Once you confirm your settings with the button **SAVE**, the contents of your bin containing all folders and clips will be saved to an extra file.

File extension:	`*.cb`	CLIPSTER bin file

After that you can import the contents of this file again into another project (see section “Import Bin…” on page 7-21).

7.4.3 Clear Bin

The ***Clear Bin*** menu option on the menu ***Bin*** deletes all folders and clips from the bin of your current project.

The selection of this menu option calls up a warning message. After the confirmation that you really want to delete the contents of the bin, the bin will be cleared.

If your currently active bin was altered and not saved, you will be asked by the program whether you want to save its contents to a bin file. When you answer this query with **YES**, the same procedure as to export a bin will be initiated (see section “Export Bin…” on page 7-22).

7.4.4 Check Bin

During the loading of a project file and the import of a bin the CLIPSTER Edit Tool performs a limited test regarding the availability of the clips present in the bin: It is tested whether the first and the last frame of each video clip is available on the video hard disks. Via the ***Check Bin*** menu option you can check your bin, and thus your timeline, more thoroughly for errors and inconsistencies.

After the selection of the menu option ***Check Bin*** the CLIPSTER Edit Tool verifies that each frame of each clip and each audio file is

present on the video system. If inconsistencies are found, i.e. missing files, you will get the following error message:

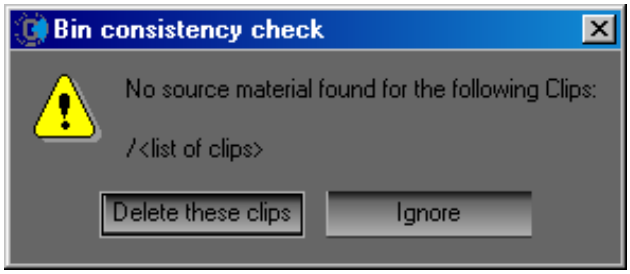


Figure 7-7: Error message of inconsistencies in the bin

The error message provides a detailed list of all clips that could not be verified. With the button **DELETE THESE CLIPS** you can then delete the missing clips from your bin, or you can proceed to the inconsistent bin with the button **IGNORE**.

Missing frames in-between the first and the last frame of a clip will be substituted during a play-out by the CLIPSTER Edit Tool with a standard image automatically (see section “Consistencies of Clips” on page 6-51).

7.5 The 'Options' Menu

The ***Options*** menu provides menu options to set up and configure the CLIPSTER workstation. In detail it contains the menu options shown below:

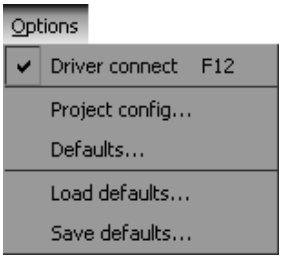


*Figure 7-8: The **Options** menu*

They will be described in the following sections.

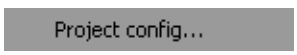
7.5.1 Driver connect

Because the CLIPSTER system is based on an open platform, other programs than the CLIPSTER software may want to access the video board of the CLIPSTER video system. To make this possible even with the CLIPSTER software running, the menu option ***Driver connect*** was implemented.

When the driver of the video board is connected to the CLIPSTER software, this menu option is activated and a check mark appears before it. If the driver is disconnected and free to be used by other programs, the menu option ***Driver connect*** is deactivated.

If the driver is not in use by another program, a simple play-out operation of the timeline in the CLIPSTER software will connect the driver to the CLIPSTER software again automatically.

7.5.2 Project config…



The CLIPSTER Configuration Tool provides overall two configuration groupings:

- You can define project related settings in a project grouping (tab **Project**), or
- you can configure default settings that will be used in general (tab **Defaults**, see section "Defaults…" on page 7-25).

While the first one includes settings that will be used for the currently active project only and stored together with the project file, the latter one contains settings that will be used for each new project as well as

for a general setup of the video system. Because the default settings include configurations regarding the video system as well, it provides comparatively more settings than the project related ones. Use the default settings in case you want to change the video system settings or the default values for each initialized new project. The settings of the tab **Project** will be stored together with the current project in the project file only and are therefore only temporarily available as long as this particular project is not closed.

The ***Project config…*** menu option on the menu ***Options*** enables you to configure and set up the project related settings of CLIPSTER. It will open the CLIPSTER Configuration Tool with the tab **Project** active. Then you can configure, for example, the paths for the temporary data as well as other project specific settings, such as the appearances of clips in the bin. All changes performed in this tab will be saved together with the project file.

For more information and a complete description of the CLIPSTER Configuration Tool please consult the "CLIPSTER Configurations" user guide.

7.5.3 Defaults… Defaults...

The CLIPSTER Configuration Tool provides overall two configuration groupings: one for project related settings (tab **Project**) and one for - default settings that will be used in general (tab **Default**).

Further information about the two configuration groupings as well as about the project related settings can be found in section "Project config…" on page 7-24.

The ***Defaults…*** menu option on the menu ***Options*** enables you to configure and set up the video system settings as well as the default values for each initialized new project. It will open the CLIPSTER Configuration Tool with the tab **Defaults** active. Then you can set up, for example, the TCP/IP settings of the CLIPSTER software as well as the period for the automatic save function of currently active projects (autosave). The default configuration settings are saved automatically together with the software when it is shut down. The project related settings available on the **Defaults** tab will be used for each initialized new project.

For more information and a complete description of the CLIPSTER Configuration Tool please consult the "CLIPSTER Configurations" user guide.

7.5.4 Load defaults… Load defaults...

With the menu option ***Load defaults…*** you can load configuration settings previously saved into a file as the new default settings of the

CLIPSTER Configuration Tool (see section “Save defaults…” on page 7-26). The selection of this menu option opens a standard dialog window for a file selection.

To load previously saved default configuration settings select in the dialog window the file that contains the desired settings from the list box or enter the its name in the entry field **File name**.

File extension:	*.cf	CLIPSTER configuration file

If the list box does not contain the desired file name, make sure that the correct drive and directory has been selected.

Confirm your selection with the button **OPEN**. The selected configuration settings will then be loaded into the CLIPSTER software. The new settings will then be applied, for example, every time a new project is initialized. Additionally, in the CLIPSTER Configuration Tool you have the possibility at hand to transfer the default settings to the project related settings, and thus to enable them for your currently active project.

Some changes to the settings will be in effect after a restart of the software only.

Further information about the CLIPSTER Configuration Tool and its settings can be found in the “CLIPSTER Configurations” user guide.

7.5.5 Save defaults…

Different tasks may ask for different settings: With the menu option ***Save defaults...*** you can save the current default and video system settings into an extra file. Thus, you can build up a library of different configuration settings and use them in the future again for different purposes without configuring the whole system anew. Furthermore, in the CLIPSTER Configuration Tool you have the possibility at hand to transfer the default settings to the project related settings, and thus to enable them for your currently active project.

The selection of the menu option ***Save defaults…*** opens a standard dialog window to save a file. There you have to specify the storage path and file name to save the current default and video system settings. As soon as your entries are confirmed with the button **SAVE**, they will be saved to an extra file.

File extension:	*.cf	CLIPSTER configuration file

After that you can load the contents of this file again into the CLIPSTER software (see section “Load defaults…” on page 7-25) which will change, for example, the default settings for each initialized new

project as well as the system settings. However, some changes to the system settings will be in effect only after a restart of the software.

Some changes to the settings will be in effect after a restart of the software only.

Further information about the CLIPSTER Configuration Tool and its settings can be found in the “CLIPSTER Configurations” user guide.

7.6 The 'Help' Menu

You can get additional information about CLIPSTER via the menu option of the menu ***Help***. It contains the following menu options:

*Figure 7-9: The **Help** menu*

They will be described in the following sections.

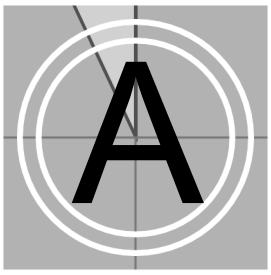
7.6.1 About…

You can receive further information about the CLIPSTER software with the menu option ***About*** of the menu ***Help***. For example, here you can find detailed version numbers of the individual software parts of CLIPSTER.

7.6.2 Manuals

The online documentation of the CLIPSTER video system can be accessed via the menu option ***Manuals*** on the ***Help*** menu. It opens an overview page in HTML format where you can select a separate documentation for the different parts of the video workstation, all in HTML format.

The second page of each documentation (containing the copyright information) provides a link to the respective manual in PDF format. This format is suited most if you want to print out the document.



Appendix

This chapter provides further information about the CLIPSTER Edit Tool.

A.1 Glossary of Terms

Here you can find some terms and their meaning as they are used in this documentation:

bin	Library and clip management tool of the CLIPSTER software.
bin clip	Either a clip present in the bin or dragged to the control area of the CLIPSTER Edit Tool. With the latter the CLIPSTER Edit Tool switches to the master mode and the bin clip will be available in the left of the two video overlays.
clip	A folder/directory of the Windows file system that contains frames (video files).
container format	File format that contains audio as well as video data in a single file only, i.e. the video and audio files are not stored as single image or audio files but together in one file.
cutting/edit point	Cut between clips. New cuts can be created with the button **ADD EDIT** of the timeline area.
drop/dropped frames	Frames/image files that CLIPSTER could not load from or write to the video hard disks in time for the performed real-time operation.
embedded operator	An operator such as a transition that is embedded in the timeline and visible as a timeline element.
frame-end marker	When zoomed far into the timeline, the timeline cursor will provide a dotted yellow line that indicates where the selected image ends on the timeline.

head	Material at the beginning of a clip that is available but neither used nor visible in the timeline of the CLIPSTER Edit Tool due to an inpoint adjustment.
inpoint	first frame/file of a clip: either the first file of video material on the hard disk or a first frame virtually set in the CLIPSTER Edit Tool.
insert	To insert or position a clip on the timeline thereby moving and reordering the already present clips.
LUT (look-up table)	In general, a table used to transform data. With CLIPSTER a LUT is used to map indexed colors of video images into a specified set of output values.
multi-clip	A clip that is handled as one clip although it consists of several individual clips. Currently multi-clips are directories of the Windows file system that contain subdirectories with frames (video files). The subdirectories and frames must follow specific parameters to be recognized by the CLIPSTER software as a multi-clip.
operator	Editing effects that can be applied to clips either as an embedded operator or as an operator set via the clip's properties.
outpoint	last frame/file of a clip: either the last file of video material on the hard disk or a last frame virtually set in the CLIPSTER Edit Tool.
overwrite	To add a new clip or position a clip on the timeline by overwriting the already present clips.
scrub bar	A slider/cursor that you can use to scrub.
to scrub	To shuttle or perform a fast image search run.
source timecode	Timecode information stored in the header of an image file (e.g. *.dpx). You can use the source timecodes, for example, in the timeline of the CLIPSTER Edit Tool instead of the internal relative timecode provided by the timeline.
tail	Material at the end of a clip that is available but neither used nor visible in the timeline of the CLIPSTER Edit Tool due to an outpoint adjustment.
timeline cursor	Position indicator of the timeline.
timeline element	Video and audio clips or operators that are visible in the tracks of the timeline.
transition	A transition effect between two video clips.

vertical editing — To add timeline elements to other video tracks in the timeline than the first one. When different timeline elements occupy the same space at the same time in the timeline, the contents of a play-out can be easily changed at that particular position.

A.2 Keyboard Shortcuts

For a more easy and a faster control of the CLIPSTER Edit Tool there are various keyboard shortcuts available which are listed in the table below:

Action	Shortcut
Play (speed 1)	[Space], [5]
Stop (speed 0)	[Space], [K], [Shift + K]
Increase speed by 1	[L]
Increase speed by 0.1	[Shift + L]
Decrease speed by 1	[J]
Decrease speed by 0.1	[Shift + J]
Step one (1) frame forward	[Right Arrow], [4]
Step one (1) frame backward	[Left Arrow], [3]
Step ten (10) frames forward	[2], [Shift + Left Arrow]
Step ten (10) frames backward	[1], [Shift + Right Arrow]
Jump to project begin	[Pos 1]
Jump to project end	[End]
Go to previous cutting point	[A], [Ctrl + Left Arrow]
Go to next cutting point	[S], [Ctrl + Right Arrow]
Activate insert mode	[V]
Activate overwrite mode	[B]
Add edit/cutting point	[Shift + H]
Set inpoint	[E], [I]
Set outpoint	[R], [O]
Set in- and outpoint (reference: cutting points)	[T]
Delete inpoint	[D]
Delete outpoint	[F]

Action	Shortcut
Delete in- and outpoint	[G]
Go to inpoint	[Q]
Go to outpoint	[W]
Trim by one (1) frame forward	[.]
Trim by one (1) frame backward	[,]
Trim by ten (10) frames forward	[/]
Trim by ten (10) frames backward	[M]

Additionally, the following keyboard actions and shortcuts may be helpful:

Action	Key Action
Select several clips and/or transitions	Hold [Ctrl] key while selecting clips/transitions with the mouse
Frame accurate trimming	Hold [Shift] while dragging with the mouse
Copy bin clip to a folder of the bin instead of moving	Hold [Ctrl] while drag and drop the clip with the mouse
Open Windows Explorer	[Windows ( ) + E]
Open Task Manager	[Ctrl + Alt + Del]
Switch to Windows desktop	[Windows ( ) + D]
Switch to another program	[Alt + TAB]

A.3 Supported File Formats

The tables in this section list the video and audio file formats that are supported by CLIPSTER. First the video file formats are listed followed by a table of the audio file formats.

Table A-1: Supported video file formats

Format Name	Default Extension	File storage format	Description
bmp	*.bmp	3 × 8 bit RGB	Windows bitmap format. Only uncompressed bitmaps are supported (no RLE compression).
cineon	*.cin	3 × 10 bit RGB	10 bit RGB format. Subset of the ANSI/SMPTE DPX file format. Flexible file format by Kodak, allowing for variable image headers.[1]
dpx	*.dpx	3 × 8 bit RGB	8 bit RGB file format. SMPTE Standard File Format for digital moving-picture exchange.[1]
		3 × 10 bit RGB	10 bit RGB file format. SMPTE Standard File Format for digital moving-picture exchange.[1]
		10 bit YUV422	10 bit YUV file format. SMPTE Standard File Format for digital moving-picture exchange.[1]
		3 × 12 bit RGB	12 bit RGB file format. SMPTE Standard File Format for digital moving-picture exchange.[1]
		4 × 16 bit RGBA	16 bit RGB file format with key. SMPTE Standard File Format for digital moving-picture exchange.[1]
tga	*.tga	3 × 8 bit RGB and 4 × 8 bit RGBA, uncompressed	Targa image format.
tiff	*.tif	3 × 8 bit RGB and 4 × 8 bit RGBA	TIFF or Tagged Image File Format in 8 bit RGB with or without key. Highly flexible and platform-independent image format. Not all variants of this format are supported by DVS.
		3 × 16 bit RGB and 4 × 16 bit RGBA	TIFF or Tagged Image File Format in 16 bit RGB with or without key. Highly flexible and platform-independent image format. Not all variants of this format are supported by DVS.

Table A-1: Supported video file formats (cont.)

Format Name	Default Extension	File storage format	Description
Windows Media[2]	*.wmv	various (e.g. RGB or YUV either compressed or uncompressed + audio)	Video file format that supports various file storage formats, either compressed or uncompressed. The whole video clip as well as audio are stored in one file only (container format). Proprietary streaming video technology developed by Microsoft.
yuv	*.qnt *.qtl *.yuv	8 bit YUV422	Raw 8 bit YUV422 format.[3] This file has no header. The image format is recognized by the file size. This is done with a table of predefined file sizes. Component order UYVY.
	*.yuv16	16 bit YUV422	Raw 16 bit YUV422 format.[4] This file has no header. Each component is stored as a 16 bit value in big-endian byte order (left-aligned). Component order UYVY.

1) DVS saves files of this format by default in big-endian byte order. However, during loading both formats (little- and big-endian byte order) can be read.
2) Available for a finalizing process only.
3) 8 bit YUV422: 8 bit per component, 16 bit average per pixel
4) 16 bit YUV422: 16 bit per component, 32 bit average per pixel

Table A-2: Supported audio file formats

Format Name	Default Extension	Description
aif aiff	*.aif *.aiff	Audio interchange format. Platform-independent format for sound files. Capable of storing multiple mono or stereo channels.
wave	*.wav	File format for digital audio (waveform) data under Windows. Capable of storing multiple mono or stereo channels.
Windows Media[1]	*.wmv	Container file format that stores video as well as audio data in a single file only. Proprietary streaming video technology developed by Microsoft.

1) Available for a finalizing process only.

A.4 LUT File Syntax

A look-up table (LUT) file defines values for the color and/or gamma correction. Depending on the color depth, for each input value the file specifies an output value for each color component and the alpha channel (key). It is a plain ASCII text file that has to match the following properties:

– Lines starting with a hash (#) are comments and will not be evaluated by the CLIPSTER software.
– There is a designated line (designated with the color depth) for the four color component values (RGBA). For example, for 10 bit video data the lines will start with zero (0) and end with 1023.
– Each designated line consists of four values (RGBA). The separation is made via tabulators ([TAB]).
– Usually, the LUT file consists of 1024 input/output values used in 10 bit video mode. If you work with 8 bit video data, only every fourth value will be used from the LUT.
– You have to define all 1024 values and they have to be in incrementing order.
– The color component values have to be stated as floating point values between 0 and 1.

The file starts with LUT: followed by the number of the color components that are valid and will be used when this file is selected, and the bit depth, for example: LUT: 3 1024. After that come the color correction values: Each line starts with the designation of the input value (bit depth), succeeded by the four color component values: first red, second green, then blue, and last the alpha channel.

This leads to the following syntax:

```
LUT: <valid color components> <bit depth>
<input value>   <R>     <G>     <B>     <A>
```

A finished and complete LUT file has to look like the following (value pairs in the middle left out):

```
LUT: 3 1024
0      0.009766    0.000000    0.000000    0.0
1      0.011719    0.000000    0.000000    0.0
2      0.013672    0.000000    0.000000    0.0
3      0.015625    0.001953    0.000000    0.0
4      0.017578    0.003906    0.000000    0.0
5      0.019531    0.005859    0.000000    0.0

...

1022   0.999023    0.988281    0.999023    0.0
1023   0.999023    0.991211    0.999023    0.0
```

A.5 Slave Mode Control

In case you want to control CLIPSTER in slave mode via RS-422, the following specifications have to be set on the master device to ensure a frame accurate editing:

preroll	>= 1 sec.
edit lag	7 frames
postroll	1 sec.

A.6 System Maintenance

This section contains topics related to system maintenance work. Carry out the described tasks whenever necessary.

A.6.1 Automatic Defragmentation

The CLIPSTER video system provides an automatic defragmentation for the connected video hard disk array that defragments previously copied or recorded data on the video storage so that it is more suited for real-time operations.

The automatic defragmentation process is automatically started together with the CLIPSTER software. It will be running in the background of the system and operates during stand-still times, meaning a defragmentation will not be performed under the following conditions:

- CLIPSTER performs real-time tasks such as play-out or record,
- CLIPSTER is running in slave mode, and
- CLIPSTER is running with the VTR task mode of the CLIPSTER I/O Tool activated.

If one of the above said is the case no defragmentation will take place. The process will be shut down as soon as the software is closed (see section “Exiting the Program” on page 3-15).

The automatic starting behavior of the defragmentation tool of CLIPSTER can be altered via the CLIPSTER Configuration Tool (see “CLIPSTER Configurations” user guide for more information).

After starting the CLIPSTER software the defragmentation process is running in the background of your video workstation. It operates in loops at certain intervals. Each time it is started it will go through various checkings and phases of defragmentation. Whether a defragmentation has to be performed is indicated by a special assessment that evaluates the fragmentation degree of the clips on the hard disk array. Once a defragmentation is indicated, it will start by defragmenting the worst fragmented files and align them on the hard disks so that they are optimized for real-time tasks such as a play-out or a record. In its next cycle it will take other not so worse fragmented files, and so on until all data is defragmented sufficiently. Afterwards in each cycle only the checking is performed until a fragmentation is detected once more.

When operating at regular intervals with sufficient stand-still times and a moderate acquisition of data, the hard disk array of CLIPSTER will always be in a perfect state for real-time operations.

The CLIPSTER defragmentation process uses proprietary routines to defragment the data on the hard disks. Because the Windows defragmentation tool will not use the same routines, it is best not to use it for a defragmentation of the video hard disk array but to leave this task to the CLIPSTER defragmentation process alone.

A triggered defragmentation process is automatically halted as soon as a real-time task is performed or the CLIPSTER is set to one of the other above mentioned states, and it will be started again when the CLIPSTER provides the operating conditions of the defragmentation process once more.

The defragmentation tool as well as the assessment program are part of the CLIPSTER tools as shown in section “Overview of the Software Structure” on page 2-2.

After copying or recording vast amounts of data to the video hard disk array, it is recommended to leave the CLIPSTER software running for a longer period of time (e.g. over night) without performing any real-time tasks (play-out or record). This will give the defragmentation tool of CLIPSTER time to reorganize the files on the hard disk array for an optimized real-time performance.

A.6.2 Cleaning the Temporary Data Manually

When you are not sure whether the prerendered files in the location of the temporary data are all necessary, you can delete the whole contents of this directory manually. Afterwards you have to load your project file(s) again and begin a new prerendering process.

It is recommended to perform the procedure described in the following only when you are sure that the directory for the temporary data contains material for the respective project only. For this you have to use a project specific directory structure as described in section “Notes on Project Management” on page 2-9.

Do not delete the temporary data manually while the CLIPSTER software is running.

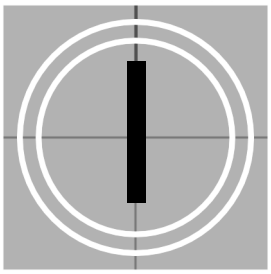
The path to the location of the temporary data is stored project specific in each project file. With the respective project file loaded in the CLIPSTER Edit Tool, its location can be found out in the Configuration Tool of the CLIPSTER software (group **Project**, field **Path for temporary data**, see “CLIPSTER Configurations” user guide).

- If applicable, shut down the CLIPSTER software.

- Open a file manager, e.g. the Windows Explorer.
- Select the project specific path of the temporary data on your video hard disk array.
- Delete all files and directories stored in the respective directory manually.
- After that start the CLIPSTER Edit Tool and load the project in question.

When the project is loaded, the CLIPSTER Edit Tool recognizes that the prerendered files are no longer available. All parts that have to be prerendered will be marked with a yellow line above the timeline (see section “Prerendering of Timeline Elements” on page 6-38). You can then start a new prerendering process, for example, with the menu option ***Prerender all*** (see section “Prerender all” on page 7-16). Once the prerendering is finished, you can be sure that all files in the directory of the temporary data are valid ones (until you delete or alter such a timeline element again).

After a prerendering save your project file. If an already saved project file is not saved after a prerendering process again, the prerendered files will not be recognized by the CLIPSTER Edit Tool when the project file is loaded once more: Neither will they be used for a play-out nor will they be deleted via the ***Clean temp dir*** menu option. In such a case they have to be deleted manually again.



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